THE OLD TIMER'S BULLETIN

OFFICIAL JOURNAL, ANTIQUE WIRELESS ASSOCIATION, INC.

Published for the Old Time Wireless Operator, Historian and Collector

Vol. 23 JUNE 1982 No. 1

NBC field engineers covering news with an on-location set up. This and other 1930 broadcast pictures are in the program to be shown Friday evening at the Conference. (Max Jacobson, W3DUG, center.)

Devoted to research and documentation of the history of wireless communications.

Member:
American Association of Museums
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ANTIQUE WIRELESS ASSOCIATION, INC.

HOLCOMB, NEW YORK 14469

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"The Old Timers Bulletin"

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Armstrong's Super-Regen set
The Silver-Marshall Co.
The Old HRO Receiver
Early Telegraph Makers
The Marconi 106 Receiver
Collecting Batteries
The Radio Products Co.
History of the Timmons Co.
Arthur Wehnelt's Cathode
SOS/CQD - Help Wanted!
Tales of Tapes
The Radiola 17 and 18
plus much more.....

COMING EVENTS
ANTIQUE WIRELESS ASSOCIATION

June 3,5 Annual ARCA Meeting Lake Placid, N.Y.
July 17 Local AWA Summer Meet East Bloomfield, N.Y.
Sept. -- Gaithersburg Hamfest Gaithersburg, Maryland
Sept. 28,29,30, Oct. 1,2 National AWA Conference, Canandaigua, N.Y.
Oct. -- West Coast ARRL Convention St. Petersburg, Florida
Oct. 31 AWA Museum closes
Nov. 7 Annual Business Meeting
Nov. 13,14 Annual VRPS/AWA Convention, Dallas, Texas
Nov. 20 Annual Worker's Xmas Party, Ionia, N.Y.
Other events to be announced in September Bulletin.

SUMMER MEET

AWA NEW YORK

SATURDAY, JULY 17

American Legion Hall
East Bloomfield, N.Y.
(1 mile east of AWA Museum on Rte. 5)

--Flea market 9 to 12 noon
--Check-in for auction 11 AM
--Buffet lunch.. all you can eat $5.25
--Entertainment.. 1 PM
--ANNUAL SOFTWARE AUCTION 2 PM

This is the time to buy and sell old magazines, books and catalogs. If the pattern holds the same as last year, there will be some good "buys".... 10% of sales to Museum Fund. (Registration $1. per person to defray ground expenses.)

Change In Address?

Mail information to the Treasurer who handles current mailing list.
(NOT the Secretary)

L. A. CUNDALL, W2LC
69 BOULEVARD PARKWAY
ROCHESTER, NY 14612

ASSOCIATION NEWS

A.W.A. FILM SHOWS

An estimated thousand AWA members have collections which probably represent the world's largest reservoir of historical radio artifacts. Twenty of these members have sent AWA headquarters slides of their private radio museums.

The slides were divided into two groups and are currently being shown at seven different "meets". Members attending the meets will thus be able to see large museums such as Ralph Muchow's, as well as specialized collections such as Bob Paquette's microphone museum, Chuck Dachis' Hallicrafter display, Dave Crocker's Crosley collection, and Bro. Pat's tube exhibit.

BACK ISSUES

Historical reference and good reading.....

The following OLD TIMERS BULLETINS remain in stock. Make out check to A.W.A. and mail to:

DEXTER DEELEY
8 Briar Circle
Rochester, N.Y. 14618

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Vol. 1 #2 and #3 (reprints for reference) 50¢ each ppd.

WRITING AWA? Send SASE for prompt reply.....

TEXAS

7TH ANNUAL CONVENTION

Vintage Radio and Phonograph Society

Saturday & Sunday, Nov. 13, 14

DALLAS, TEXAS

Programming--Flea market--Contests
-- Auction --

This will be the first time AWA joins VRPS in their Annual Convention. All members are urged to attend. A great time will be had by all. More information in the September AWA Bulletin.

Batcher Award

Congratulations to Ernest de Coste as recipient of the 1981 Batcher Award. Ernie is curator at the Canadian Science Museum, Ottawa. The prestigious award is given annualy by the Radio Club of America for outstanding work in the field of historical radio. To date, five out-of-six recipients have been AWA historians:

1976 - Morgan McMahon
1978 - Bruce Kelley
1979 - Robert Merriam
1980 - Ed. G. Raser
1981 - Ernest de Coste

AWA NETS (EST/ESDT)

PHONE (SSB) -- 3866 kc. Tuesday 8 p.m.
Mon. - Wed. - Fri. at 9:30 a.m.
Sunday -- 7242 kc. at 12 Noon
Tuesday -- 14274 kc. at 5:30 p.m.

CW -- 3584 kc. daily at 4 p.m.
First Wed. each month at 8 p.m.

A.W.A. BADGES

The large orange badges worn by members at radio meets are again available. The badge has a large plastic window and insert on which the wearer writes his name and other identification. A masthead and old radio call letters surround the opening. Available @ $1.25 at "meets" or $1.50 by mail ppd.

Lincoln Cundall
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Rochester, N. Y. 14612

AMATEUR RADIO

Editor: Ken Gardner, W2BGN
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All correspondence requires SASE for reply

RESULTS OF AWA OLDE TYME CONTEST

Congratulations to our winner, K4TS! This is the first year the scores have topped the 1000 mark, and those that did, surely deserve great credit.

Members who topped the 500 mark also deserve much credit too. A fine job all around. Final scores and highlights in the September OTB.

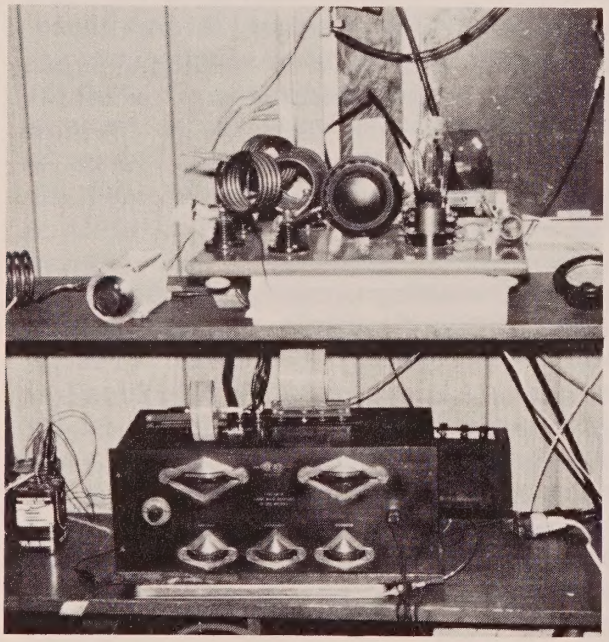
Scores over 1000

K4TS	1207	Charlie Hinkle Fredericksburg, VA.
W2LV	1172	Bob Morris Sparta, NJ.
K2LP	1022	Bud Hall Brookside, NJ.
W2HYN	1016	Bill Shaw Holcomb, NY.

Scores over 500

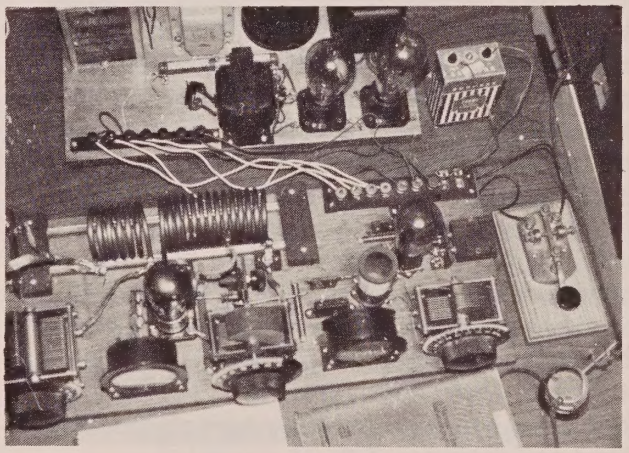
W2LC	806	Linc Cundall Rochester, NY.
W8VSK	740	John Keese Northville, MI.
W4NM	692	Frank Kohl McLean, VA.
W2AN	688	Bruce Kelley Holcomb, NY.
W2BGN	615	Ken Gardner New Hartford, NY.
W3DB	605	Dave Bechtold Johnstown, PA.
W8AU	545	Perry Ballinger Massillon, OH.
W8BFD	524	Bill Ernst Comins, MI.
K4KP	516	Hack VanHooser Chattanooga, TN.

OLD TIME TRANSMITTERS



W7FS, Belfair, Wash.

Keith Olson could be considered a dx station to participants in the East. He used a pp tptg xmtr with a rare Grebe CR-18 receiver. . one of the few commercial receivers of the 20's.



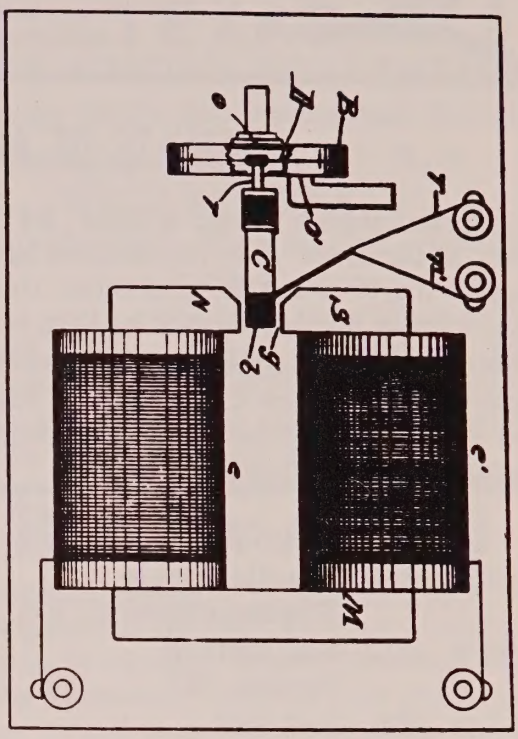
W5KL, Jasper, Arkansas

This is the station that is first heard on 80 as RST 449 and slowly builds up to 589 by 10 PM. Leland Smith is a regular contestant each year and top scorer in the 5th district. The neat layout is a 245 xtal osc. driving a single 210.

Not seen is his SW-3 receiver. Note the log and ARRL Handbook. .

TWENTY YEARS OF THE MAGNAVOX STORY – 1911-1931

by Robert Lozier, Monroe, N.C.



Basic construction of Magnavox moving coil telephone receiver prior to 1916 (from 1913 patent disclosure).

The Magnavox Company was incorporated August 1917 but the 'story' begins years earlier.

In 1910, Edwin S. Pridham and Peter L. Jensen were working as operator/engineers for the U.S.A. licensee of the Poulsen continuous arc wireless system. The number one problem with the system was the fact that without some means of amplification or a more efficient telephone receiver, the signals were at times simply too weak to copy.

Because of some disagreement with management, they resigned their positions in the fall of 1910 and, in February 1911, with the financial backing of Richard O'Connor formed the *Commercial Wireless Development Company*. They went straight to work to develop a more sensitive telephone receiver and within a few months had developed a very sensitive unit making use of the moving coil principle (see drawing). Unfortunately it was much heavier and more costly to manufacture than any of the standard Bell type receivers in use at the time. The introduction in 1915 of vacuum tube telephone repeater equipment just about eliminated the necessity for a high sensitivity receiver. They were stuck with a good performing unit that few needed.

It was only by chance that in May 1915 Pridham discovered that their invention had loud speaking qualities. In an idle moment while preparing their device for a demonstration, a phonograph horn was placed over the opening in the unit. They were completely astounded by the results!

This new loudspeaker was given the name Magna Vox from the Latin '*great voice*'. Outdoor public address seemed to be the most likely application for this new device. During 1915 and 1916 many public demonstrations were given that attracted considerable attention in the national press.

During 1916 they developed the first phonograph to use electrical means of reproduction .... brand name *Tele-Phonograph*. At about the same time, another system called the *Telemegafone* (Type MV-1) was introduced. This outfit, available till 1925, would allow for public address or the playing of phonograph records.

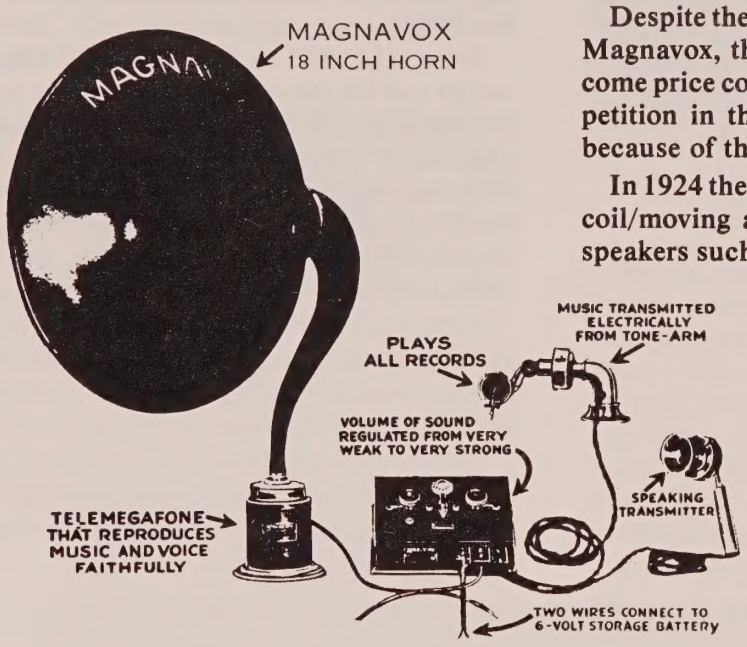
They were able to interest the Sonora Phonograph Distributing Company of California in the possibility of equipping phonographs with Magnavox equipment. (Columbia and Victor were not at all interested.) So a decision was made to merge Commercial Wireless with the Sonora distributorship in August 1917; the new company to be called *The Magnavox Company*.

While the merger was in process, Pridham and Jensen were called on by Commander Sweet of the Navy to develop an anti-noise microphone urgently required for aircraft radio telephony. After all but giving up on the project, they hit on an elegant yet simple device. This new anti-noise microphone when coupled to their moving coil telephone receiver resulted in an ideal marine telephone system that by the end of WW-I was in use on 270 Navy and over 1,000 merchant marine vessels.

[Continued from previous page.]

Business was very good for the company during the war years. In 1919 it was necessary to move from outgrown facilities at 526 Mission Street, San Francisco, to a new plant on 14th Street in Oakland, California.

The company began anew to expand its P.A. equipment business. By mid year, reliable vacuum tubes were becoming available for commercial use, and Magnavox began to design and build power audio amplifiers that would make maximum use of these tubes.



Magnavox Telemegafone.
(Type MV-1)
A popular system for general P.A. work.

As early as 1920 enthusiasts were hooking up Magnavox equipment to their radio outfits. By 1921 the company had introduced a horn speaker equipped with a small matching transformer called the '*Radio Magnavox*'. Later this unit would evolve into their most popular horn speaker; the R-3 and R-3-D. I will not go into detail here regarding horn speaker production since Floyd Paul and Walt Sanders covered the subject quite well in the December 1980 "*OTB*" (Vol. 21, #3).

In early 1922, at the start of the radio '*boom*', Magnavox production was 20 speakers per day with 500 total employees. By July production was up to 750 per day with 700 employees. But then a slump set in and by the end of the year, production was down to 100 per day with 120 employees. Such roller-coaster business made it clear that the company should find ways to broaden and diversify.

In 1924 the company introduced an adjustable bed lamp called the MAGNALUX and a line of radiant and convection electric heaters under the MAGNARAY brand name. In 1927 the company acquired a small aluminum foundry and began producing automobile accessories.

In 1923 work began on what Magnavox claims is the first T.R.F. receiver to feature true '*one dial*' tuning (see *OTB*, Vol. 19, #3). The ganged tuning inductances proved very expensive to manufacture and only a few thousand were built during 1924. In 1925 & 26 about 60,000 '*One Dial*' sets were built using a more conventional ganged tuning capacitor coupled with a very efficient torodial R.F. transformer. The 1926 chassis were the first to be described by the company with the now famous phrase '*works in a drawer*'.

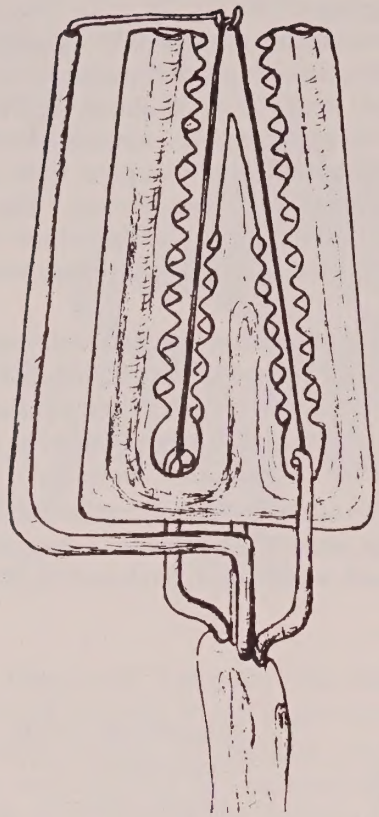
Despite the good brand name identification of Magnavox, the company was never able to become price competitive with the very heavy competition in the major Eastern markets mainly because of their West Coast location.

In 1924 the company introduced a line of fixed coil/moving armature permanent magnet horn speakers such as the M-1, M-4 and M-20. Also unique speaker/amplifier combinations called A1-R and A2-R were offered for the first time. The AC-2 and AC-3 power amplifiers of 1920 went thru minor revisions over the years and the company continued to design and build custom and general application public address systems.

Little is known about vacuum tube production at the company despite the fact that over 200,000 tubes had been manufactured by mid 1926. Company involvement in tubes began in early 1924 when employee Herbert Metcalf obtained a patent for a tube in which the control electrode is claimed to be outside the path of the filament/plate current.

By August of that year, they were ready to announce the Magnavox Type 'A' tube. This tube, described in the March 1925 issue of *QST*, has a unique 'grid' structure (see drawing). The claim is still made that the grid is outside the filament/plate current path but it is easy to see that the control action can be the same as with a conventional wire grid.

This tube had lower impedance and interelectrode capacity than the standard UX-201-A. Problems with critical placement of the filament within the 'grid' structure led to very frequent filament/grid shorts and filament life, in general, was dismally short.



Filament-grid structure of Magnavox Type "A" tube (circa 1924).

In 1925, along with the introduction of their capacitor tuned '*One Dial*' radios, the Type 'A' tube was abandoned in favor of a tube they called the '*Universal Type 201-A*'. Internal construction was more or less conventional and remained in production until mid 1927.

In early 1927, a Type 171 power tube was introduced. Other tubes were announced but never came to market because the vacuum tube department was shut down by the board of directors after discovering that not one of several hundred tubes tested would operate more than five hours.

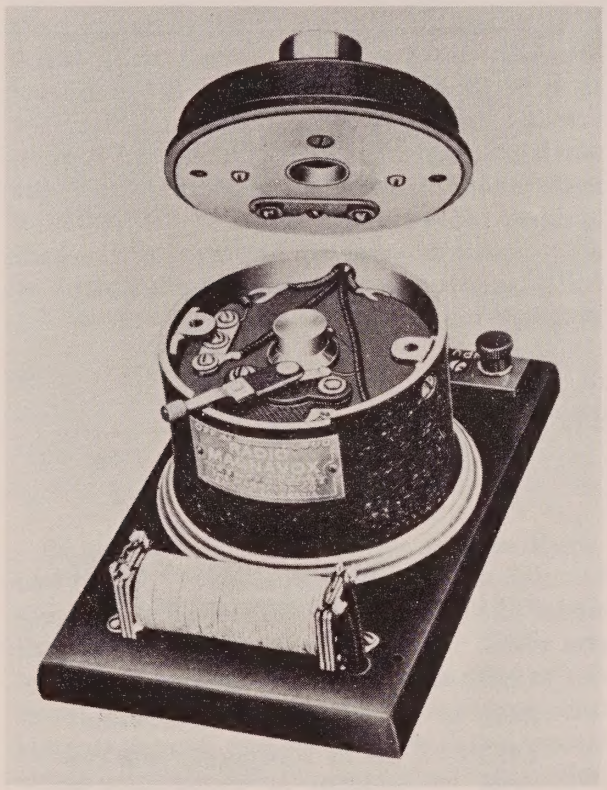
From mid 1925 on thru mid 1927 things did not go well for the company. The radio industry in general was in a slump and the company was plagued by internal management problems. A decision was made to relocate to a new and smaller factory in Emeryville, California. In a drastically re-organized company, the major radio-related product would be loudspeakers.

As far back as 1925 the company had done development work on cone type moving coil speakers but because of the management problems the development progressed very slowly.

In June 1926 the company introduced its first cone speaker, the M-7. This unit used a balanced armature type driver unit much like those on their old 'M' series horns.

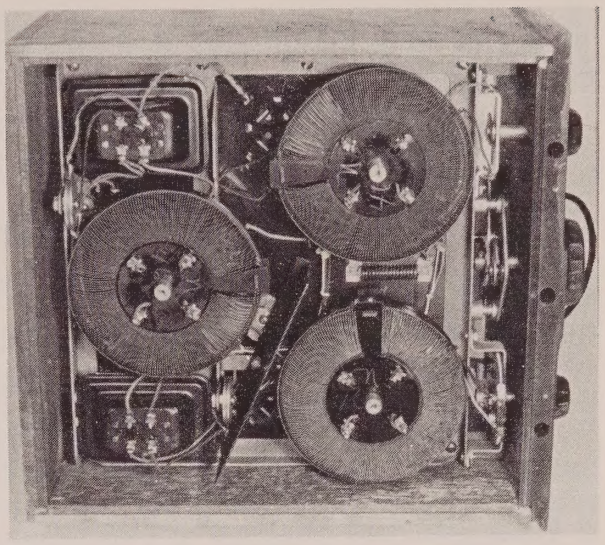
Assembly department at early Magnavox plant.

By mid 1927 Mr. Pridham had developed, on his own, a moving coil cone speaker featuring a 1¼" diameter pole piece and a cone supported by kid leather at the outside edge. The production versions of this speaker were designated R-4, R-5 and R-50. Most were sold for use by radio set manufacturers but Magnavox also offered the speakers mounted in table top and consolette cabinets. The R-50 unit was the R-5 speaker with an integral one stage power amplifier and power supply. Many failures occurred with the R-50 because of un-authorized capacitor substitutions. The unit was improved and became the R-500.



Base of R-3 hornspeaker showing volume control.

Finished and semi-finished horns on their way to the enameling department at the Magnavox Plant.



1926 Magnavox chassis showing torodial R. F. transformers.

By the spring of 1928 they were ready to launch a series of speakers that featured interchangeable cone head and field coil core assemblies. (D-6, 7, 8, 9, 20, 80 & 90). These new designs were incorporated into their cabinet speakers. Despite a large advertising budget, these cabinet speakers did not sell well and would be the last electronic items offered directly to the public until 1937.

By early 1929 speaker production had increased to 4,000 units per day. Magnavox was losing about a quarter million dollars a year because their sources for raw materials and primary customers such as Crosley, Zenith, Sears and Colonial Radio were all in the East. A final assembly plant was opened in Chicago to eliminate some costs in serving these customers. A few months after the stock market crash the Emeryville plant was closed. The Chicago plant was not proving satisfactory so arrangements were made for the lease and subsequent purchase of a plant on Bueter Road in Fort Wayne, Indiana.

Just after '*the crash*', times were ripe for mergers and takeovers. The Mershon electrolytic capacitor division of the Amrad Corporation agreed to merge into the Magnavox Company. By the beginning of 1931 the speaker division and capacitor divisions of the company were in operation in Fort Wayne and would stay there for the next fifty years.

The year 1931 marks the end of the first twenty years of the Magnavox Story, a story that is still being written today. In 1981 the company became a part of the *North American Phillips* organization and continues to offer a full line of consumer electronic equipment. Highly automated factories and new strategies in meeting the demands of the market are enabling the company to obtain an increasing share of that market.

AMATEUR RADIO POSTAGE STAMPS

by Vic Clark, W4KFC

Nearly every radio amateur is familiar with the postage stamp issued by the United States in 1964 on the occasion of the fiftieth anniversary of the American Radio Relay League. But it may come as a surprise to some to learn that this is neither the only amateur radio stamp nor was it the first to be issued.

The first such stamp is a 2.50 zlotys stamp issued by the government of Poland in 1961 as part of a three-stamp set marking the Conference of Communications Ministers of Communist countries held in Warsaw that year. This stamp bears the emblem of the *Polski Zwiazek Krotkofalowcow* (PZK), the Polish amateur radio society, with a background of a world globe and carries the message "CQ de SP".

One clue to the activities that a nation considers worthy and important may be found in the nature of the postage stamps it issues. Many postage stamps issued by various countries bear electronics and communications themes, but in the much narrower field of amateur radio there are, to date, twenty-one such stamps. Qualification as an amateur radio stamp requires that it specifically mention amateur radio and carry a pertinent illustration or design. Most, but not all, of the amateur radio stamps issued thus far honor some anniversary or special amateur radio event.

Although amateur radio postage stamps have been issued over a span of the past twenty years, each of these is still available at small cost through stamp dealers or by trading with fellow amateurs. For the benefit of those interested in undertaking such a collection, here is a list of the amateur radio stamps issued to date, together with catalog numbers (where available) which will provide for a reference in locating stamps for your collection:

Date Issued	Country	Face Value	Scott Catalog	Minkus Catalog	Comment
6/26/61	Poland	2.5 zlotys	993	1320	One of set of three, PZK
6/26/61	Poland	3.5 zlotys	993A	1321	3-stamp souvenir sheet (including 993/1320)
12/15/64	U.S.A.	5 cents	1260	--	50th anniversary of ARRL
5/23/66	Yugoslavia	85 paras	809	1443	20th anniversary of SRJ
8/ 8/72	German Dem. Rep.	25 pfennigs	1391	1682	One of set of five
4/ 6/73	Colombia	60 centavos	813	1269	40th anniversary of LCRA
4/15/75	Poland	1.5 zlotys	2088	2453	IARU Reg. 1 conference
4/16/75	Costa Rica	1.00 colones 1.10 colones 2.00 colones	C633 C634 C635	1185 1186 1187	Set of 3 airmails; 16th convention of Federacion de Radio Clubes de Centro America y Panama
10/ 8/76	Dom. Republic	6 centavos 10 centavos	773 C246	1283 1284	Set of two recognizing 50th anniversary of the Radio Club Dominicano
9/24/77	Japan	50 yen	1312	1394	50th anniversary of amateur radio in Japan
11/ 5/77	Brasil	1.30 cruz	1533	1742	Amateur radio day, Brasil
1/25/79	Dom. Republic	10 centavos	6286	1358	Beata Island DXpedition
2/23/79	USSR	4 kopecks	4733	4932	RS-1 and RS-2 amateur satellites
3/26/79	Bolivia	3 pesos	638	—	38th anniversary of RCB
9/ 6/79	Switzerland	70 centimes	679	—	50th anniversary of USKA
5/23/80	Argentina	$700	1287	—	59th anniversary of RCA
10/ 3/80	Dom. Republic	7 centavos	C320	—	Isla Catalina DXpedition
3/12/81	USSR	4 kopecks	—	RU-5159	30th All Union amateur radio exhibition
6/25/81	Djibouti	250 F	—	—	Carries emblems of Radio Club of Djibouti and IARU

In many countries there are a number of special interest groups clamoring for the issuance of special postage stamps to publicize and honor their particular interest or activity. There are, however, practical limits on the number of different postage stamps a country can design and issue each year, and the result is that a topical stamp generally reflects widespread recognition of the value and importance of the activity depicted. Thus, radio amateurs can take pride in the stamps that specifically honor the amateur radio service and the fact that these exceed in number those issued to honor any other radio service.

The most recently issued amateur radio stamp, that of the Republic of Djibouti, is also the highest denomination, carrying a face value of about $1.40. It is a striking stamp, carrying the club and IARU logos, a large telegraph key, and a satellite view of northeast Africa with a three element yagi marking the location of Djibouti, all in several colors.

Also of interest to collectors of amateur radio stamps will be a small group of stamps that might be termed "*quasi-amateur radio stamps*". These bear some relationship to amateur radio, but do not meet the aforementioned qualifications. One of the most interesting of these is a stamp issued by the USSR in 1973 honoring Ernst Krenkle (who died in 1971) and bearing his likeness. Ernst was a radio amateur who served for some time as the president of the Russian Radio Sports Federation and who has come to be regarded as the "*grand old man*" of Russian amateur radio. He was made a "*hero*" of the Soviet Union for his role in providing rescue communications for a stranded Arctic expedition of which he was a member. Ernst was subsequently permitted to use the call of that expedition, RAEM, as his personal amateur call sign and was active on 20 c.w. for many years.

Another stamp reflects the strenuous efforts of the Deutscher Amateur Radio Club to obtain philatelic recognition for amateur radio by the government of West Germany. The result of their efforts was issuance of a stamp in 1979 recognizing the World Administrative Radio Conference (WARC-79). This stamp shows a hand tuning a KWM-2; careful examination of the dial settings discloses that it is tuned to 21,275 kHz!

There are also several stamps carrying the likenesses of regents King Hussein (JY1), of Jordan, and King Juan Carlos (EA0JC) of Spain, not to mention Guglielmo Marconi and Edwin Armstrong, who were amateur experimenters in the years preceding their professional careers.

[Continued on next page]

[Continued from previous page]

Perhaps the most timely of all the amateur radio stamps to be issued thus far was that by the government of Switzerland, honoring the fiftieth anniversary of the founding of the *Union Schweizerischer Kurzwellen-Amateure* (USKA), the national amateur radio society of Switzerland. This stamp was placed on sale during the World Administrative Radio Conference in Geneva, and was on prominent display at the post office in the International Telecommunication Union conference building while WARC-79 was in progress. Thus, many delegates to the conference received the subtle message that the host government regarded the amateur radio service as worthy of special recognition.

There are more amateur radio stamps to be issued. Several national amateur radio societies are working to secure governmental approval for such stamps and word of their success will be carried by the amateur radio journals.

But now is the time to start your collection, for all the amateur radio stamps thus far issued are still available with a bit of searching. With the growing number of collectors, however, this state of affairs may not long exist.

Smithsonian thinks it has 78 million items, so it'll start counting

The above appeared last year under Associated Press headlines. A recent visit to Washington confirmed the Museum was still in the process of inventorying its collection of 78 million objects. It will be the first complete inventory of the Smithsonian collection in 150 years.

Fortunately, much of the radio and electronic artifacts have been identified and cataloged. Maybe AWA can get Elliot or Ray Hutt to tell us about the project sometime.

Objects that must be stored will be moved to a $28 million facility the Institution is building six miles from downtown Washington. The 330,000 square-foot warehouse also will offer research space and room for preservation experts to work.

SILENT KEYS

Eunice Thompson, W1MPP
Donald Mead, K4DE

HISTORICAL REVIEW

The following news clipping tells of the world's first television broadcast of a play. The time: Sept., 1928.

Of interest to AWA members, one of Alexanderson's huge scanning discs (30" dia.) is on display in the A.W.A. Museum.

Play Seen and Heard Via Radio

Schenectady, N. Y.

A playlet was broadcast simultaneously by sound and vision radio for the first time in history by the General Electric Co. in a recent demonstration. The voice and action of J. Hartley Manners' one-act play "The Queen's Messenger" came through space in perfect synchronization. It required forty minutes to broadcast the play.

The pictures received were three by three inches, and they were sometimes blurred and indistinct. They were not always in the center of the screen and they flickered a good deal. Consequently they were not always easy on the eyes. Yet the action could be seen and the words of the actors clearly heard and understood. The synchronism, of course, was perfect.

The transmission took place on three wavelengths. The pictures were carried on 379.5 meters and on 21.4 meters and the words were carried on 31.96 meters.

Alexanderson's Work

The demonstration was made possible by the development by Dr. E. F. W. Alexanderson of a simplified portable television camera, used for the first time in public to record Governor Smith's acceptance speech at Albany, and by the previous development by Dr. Alexanderson of a simple television receiver.

Dr. Alexanderson stressed the fact that the development of television and the simultaneous transmission of sound and imges are still in the experimental stage. He predicted, however, that some day we would have special television theaters which would have no actors nor musicians but which would receive their performances from a central broadcasting station of sound and images. He also predicted that color television would be added in time.

RESTORING AN ASTATIC CONDENSER MICROPHONE

by Charles Affelder, N3AYU, ex-W8HLM

In 1936, I became employed by broadcast station WWSW, Pittsburgh, Pennsylvania, my home town. At the time WWSW was a 250 (100 at night!) watter on 1500 kc. with mostly home-made equipment. They were using two types of Astatic condenser microphones: one mounted inside a 6 x 6 x 6" black wrinkle sheet-metal box and another mounted in a Y-shape yoke fastened by screws and knurled thumb-nuts on a brass plate covering one end of an 8" diameter piece of brass tubing.

The second type employed a 2-stage pre-amplifier inside the tubing with type 864 tubes and powered by external batteries. In all, I believe there were six of the box types and two of tube models at WWSW.

In the late 30's, one of the tubular pre-amp mikes was badly damaged in a fall and was junked. I rescued it, and in December, 1980, decided to restore it if possible. The brass tubing case and end fittings were missing and the microphone head was in-operable as the diaphragm was broken and front grill badly damaged.

First, I completely dis-assembled the head and cleaned off the tarnish. I located a source of diaphragm material, 1.0 mil aluminum alloy foil, after considerable phoning and correspondence. After ruining four or five potential new diaphragms, I finally installed and stretched one without breaking it. Then I made a new front grill from a piece of my daughter's cast-off black nylon panty-hose, which looked like the original.

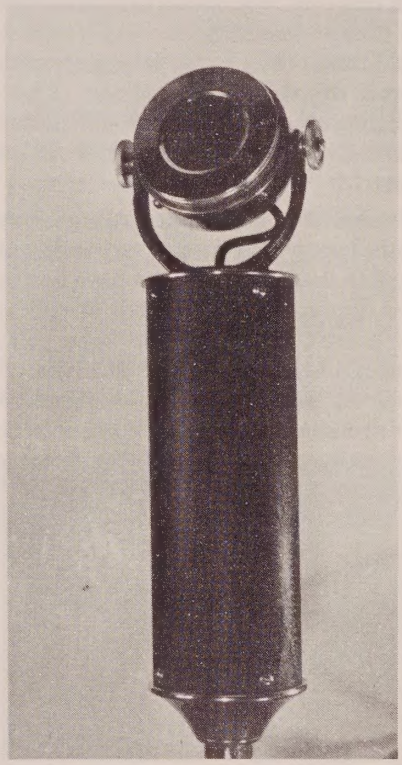
After assembly, wax was used to seal the head against outside moisture and then the entire unit was baked in the kitchen oven at low temperature to drive out moisture through a small hole thoughtfully provided by the manufacturer.

In deciding what type of pre-amplifier to substitute for the lost original, I stuck with the idea of using tubes with indirect (AC) heaters since I needed fairly high DC voltage to polarize the diaphragm. I bread-boarded a 3-stage triode amplifier using 12AY7 and 6C4 tube from the junkbox. I used negative feedback, about 20 db, around the 2nd and 3rd stage.

I then mounted the mike head and its yoke on the breadboard chassis and connected it, turned things on, de-bugged it, dealt with the hum and noise, and eventually was able to achieve very good performance. It produced a very hi-fi sound in my tape recorder and worked well with my Kenwood TS-180 ham transceiver!

It was now time to mount the mike. Very little information could be found. The Astatic Corporation was of no help although W4TZ (ex-W8MJM) was helpful with dimensions on the case.

Drawings were made of the missing components and a local machine shop did the rest. The parts and microphone were commercially nickel plated and the pre-amplifier re-built to fit within the new case along with the small solid-state power supply.



The result. Condenser mikes usually hang upside down.

In its final form, I found the amplifier frequency response excellent with noise about 65 db below peak output. The output level is about -15 VU at the 600 ohm output terminals (a small output transformer is used). I have no way of measuring microphone performance overall, but it sounds equal to other modern microphones.

This old microphone brings back many pleasant memories of days as a broadcast engineer. I can almost see many of the performers and announcers as they were when they used it at WWSW, as I now use it occasionally at N3AYU when on the AWA 75 meter SSB net.

THE TRANSISTOR WAY

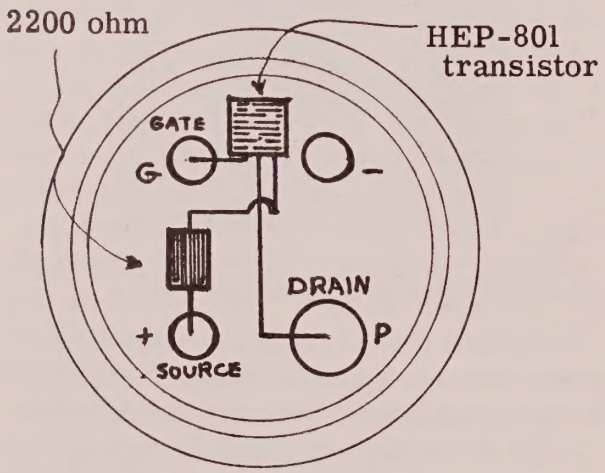
by Bud Bedker

Trying to operate old battery receivers on transistors is not new as others have had success with this method back in the early '70s (See *OTB* 16-1-6). However, I have experimented with transistors for the past 5 years and may be able to give some advice on my experience.

Using the transistor in place of tubes accomplishes three things: Only one battery is necessary, either a 3.0 volt setup consisting of (2) Type D's in series or a regular 9.0 volt transistor battery. This is quite a switch from all the A, B and C batteries!

Next, by incorporating the necessary transistor and resistor in the original tube base and replacing the glass envelope, the set looks like the original. And lastly, there is no need to change the set's wiring. I might add, however, it is in this area that I have done quite a bit of experimenting, especially with sets with more than 3 tubes. The latter frequently require different types of transistors and resistors. I have found the transistorized set frequently out-performs the original tube line-up in sensitivity but not always in tone quality.

I am often asked how to separate the glass envelope from the tube base which is necessary to place the new components in the base. So far, I have had best luck by repeated applications of Acetone or nail polish remover, let it soak down into the base. Caution is advised using chemicals near open flames and the need to wash hands frequently. A simpler method that works sometimes is to place the tube in hot water just above the base level and increase the water temperature gradually to prevent breakage.



WD-11 base
(Top inside view)

Now to place the transistor and resistor in the old tube base. I first assemble the transistor and resistor outside with about one inch tinned copper lead wires except for the "*source*" lead which uses the resistor pigtail. The wires are bent to conform to the connections in the tube base. As noted, I use a WD-11 as an example since it is easy to work with and used in many early receivers such as the Radiola III.

Clean the base free of old glue and drill pin holes free of excess solder. With wire harness formed to approximate shape, enter wires into pin holes. Snip off protruding wire leaving about 1/16" and solder. Cut off wires from original tube envelope, clean and re-mount in socket with expoxy glue.

This procedure will work with 01A's and '99s but the hook-up on the pins will be different of course. A good transistor to start with is the HEP801 with a 2200 ohm resistor. Always connect the "*source*" lead of the transistor to the pin in the base that goes to the rheostat or filament switch. This will turn the set off.

The battery hookup to a set with transistors is very simple in most cases. Connect *ALL* B+ wires (or terminals) to A+ (.3 or 9. volts) and *ALL* the other wires to the minus side of the battery. Sets with one or two tubes seem to work better with 3.0 volts.

I am currently transistorizing sets with 5 or more tubes and hope to have more information on the subject such as speaker operation and methods to control volume.

I would like to hear from other members who are experimenting with transistors and know of their results.

Bud Bedker, 66 Cloverside Ct.
West Seneca, New York 14224

A few years ago AWA reported the closing of the RCA Harrison tube manufacturing plant. Now word is received that Mullard, Britain's leading tube manufacturer, has closed its doors. During its lifetime, the company produced over one billion tubes!

At one time every television set was loaded with tubes, and in 1959 the company hit its peak production of 57 million valves (tubes.)

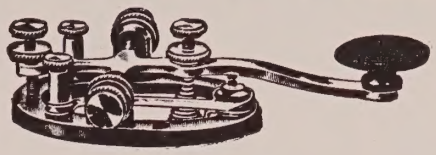
The original Mullard plant was in the London area. However, at the outbreak of the war, the manufacturing facilities were moved out of the area because of potential Nazi bombing. The final site was Blackburn in Lancashire.

[Tudor Rees Newsheet]

CORRECTION: March '82 OTB, Tape recorder on page 12, Fig. 2 uses steel wire -- not steel tape...

KEY and TELEGRAPH

Editor: Lou Moreau, W3WRE
305 N. Llanwellyn Avenue, Glenolden, PA 19036
All correspondence requires SASE for reply



QUE: Landline keys look all pretty much the same but the wireless keys all differ in size and design. Why is this?

ANS: The design depended on the manufacturer and is a fairly good standard (although rough) method of identification. For instance, the Walter Massie keys are an exception. Although they are American made, Massie, English by birth, retained the straight lever style. Size was basically governed by several criteria: use, transmitter power, and operator safety.

QUE: how do these three criteria work into a key used on spark transmitters?

ANS: Many shore stations used larger keys such as the (Figure 1) Massie with the 14 inch long lever, solid brass construction and slate base which keyed the high power (2500 watts) of the Point Judith Station in 1909. The large size is obvious when compared with the U.S. Navy standard 1918 key beside it.

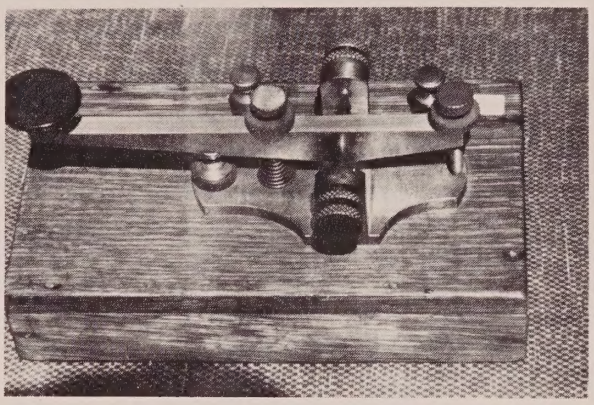


Figure 2 – Key from Old Providence Station. Massie Wireless Telegraph Company 1909 (W2ZI Collection)

The safety standards of the large brass under the contacts helped to dissipate the heat generated. The smaller Massie keys (Figure 2) also used large silver contacts mounted on brass for cooling purposes. All keys of the early spark period show slate, marble, or very thick wood bases to protect against the high current generated by keying the primary of the high voltage transformer.

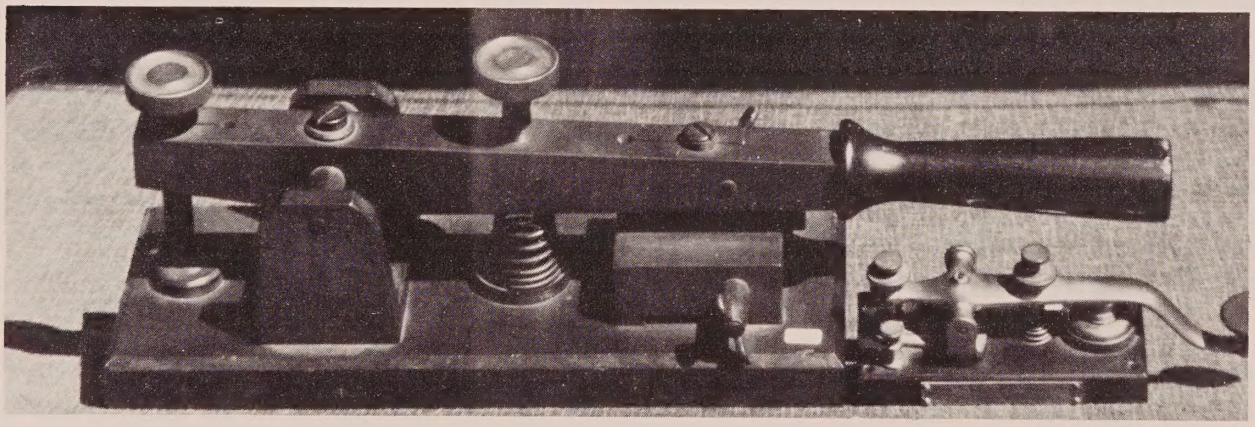


Figure 1 – One of the largest wireless keys made. Massie Wireless Telegraph Company 1909 (W2ZI Collection)

Farnsworth's lab designated a historical site in California

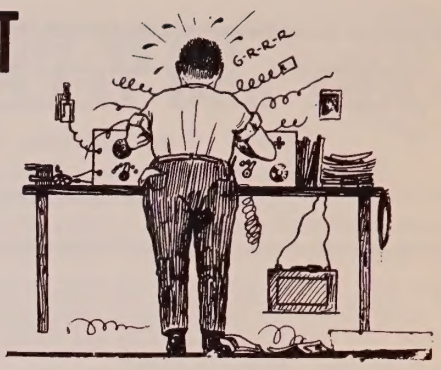
The laboratory where Philo P. Farnsworth developed his first all-electronic television equipment has finally been designated as a historical landmark. The site is on Green St., San Francisco.

It was on Sept. 7, 1927, at this site when Farnsworth, only 21 years old, along with several dedicated assistants, produced his all electronic television system. One of his early camera tubes, an image dissector, may be seen in the AWA Museum, Holcomb, N. Y.

Farnsworth died on March 11, 1971. An IEEE Fellow, he had over 300 patents in his name.

RESTORING OLD EQUIPMENT

How did you SOLVE a problem when re-storing a receiver? Drop us a note telling how you did it.



REPAIRING RCA CATACOMBS

by Ben Kittredge, WA1PBR

Getting into and repairing RCA 6 & 8 tube catacombs is not as insurmountable as it might appear, and as it can involve several hours of work, it is particularly satisfying to have one of these sets actually work. Of the 5 different Radiola types with catacombs that I have attacked, 3 have had open catacombs and two had external problems (ie open loop and open resistance strip in an AC powered set).

The open catacombs were approached in the following manner: Remove tubes and the power cable as it attaches to the catacomb terminal strip. Most schematics of catacombs are reproductions of original issue RCS forms and usually number the wires (*whiskers*) leading from the catacomb as well each individual terminal on the terminal strip.

Utilizing both whiskers and tube socket contacts, make every conceivable continuity check of the components (coils & transformers) contained within the catacomb. If possible, beg, borrow or steal an *RCA Service Manual* covering this period as it lists the continuity check in a systematic way. If your catacomb checks out OK send your local charity a token of your good fortune.

If the catacomb tests open, then each whisker connecting the catacomb with the terminal strip should be numbered and unsoldered. Next, the hardware attaching the catacomb to its spring mount should be removed. Each catacomb has two lead seals with RCA imprinted on them; broken or missing seals suggested tampering to RCA. I have routinely slid a razor blade under the seals and cut them at their stalk and glued them back at the time of reassembly.

At this point the catacomb should be free of the remainder of the radio. The contents of the catacomb are potted in some type of exotic paraffin mixture. Your next hurdle is to melt the paraffin in order to remove the bakelite top containing the tube sockets from the sardine can base. To accomplish this I have utilized the family oven, using a temperature on my particular stove of 225° F. Allow the catacomb to bake for a couple of hours; then pull the top out of the sardine can base and pour out the molten paraffin quickly as it hardens fast.

You will likely find that reheating will be necessary a number of times to remove all the paraffin from around the fine wire and components. I believe over the years with extremes of temperature the paraffin mixture has contracted resulting in the breakage of the fine wires leading from the various coils.

Repair is usually a matter of splicing the broken leads together. You may find that actual repair of the catacomb takes only 5 minutes in spite of several hours of preparation. An open audio transformer complicates things somewhat as some of them were riveted to the subchassis. Nevertheless the rivets can be drilled out and the transformer core replaced with a new one, ie a Stancor A-63 core.

I would suggest rechecking the continuity before reassembly. Personally I don't feel compelled to add either the old paraffin or something new at reassembly. One other word of advice: I look at the Radiola 25 and 28 as being transitional sets in that they could be purchased as a battery set or in some type of AC package. Also RCA sold AC conversions which required rewiring and the addition of a resistor strip on the back of the catacomb.

If your set has a resistor strip it was either purchased as an AC set or converted. If you have an AC set without the original supply you'll need to supply roughly 25 volts DC for the filaments; be sure that you determine this for yourself as Radio Shack does not have either UV- or UX 199's. Good luck!

CONGRATULATIONS!

to AWA member Vic Clark, W4KFC for being selected as President of American Radio Relay League . . !!

ROLAND MATSON HAS PROBLEMS

An un-expected delay in his moving schedule found our amateur part manufacturer moving into his Maine retirement home in mid-winter. Result: just about everything came to a grinding halt including mailing his catalog. Now that the snow has disappeared and the ice off the mill pond, he is answering all back letters. Philosophically, he tells us his printer is now charging more for his new catalog.....

AUCTION

of early mechanical and traction equipment, early radios ands phonographs and other misc. items. Preview on Friday, Sept. 17. Auction Sept. 18 & 19. Auction catalog and admittance $15. For information, write: Don Matteson, Henry Ford Museum, Dearborn, Mich. 48124

1982 NATIONAL CONFERENCE 1982

The Antique Wireless Association

"An amateur organization devoted to the history of wireless"

AFFILIATE

SHERATON INN
CANANDAIGUA, N.Y.

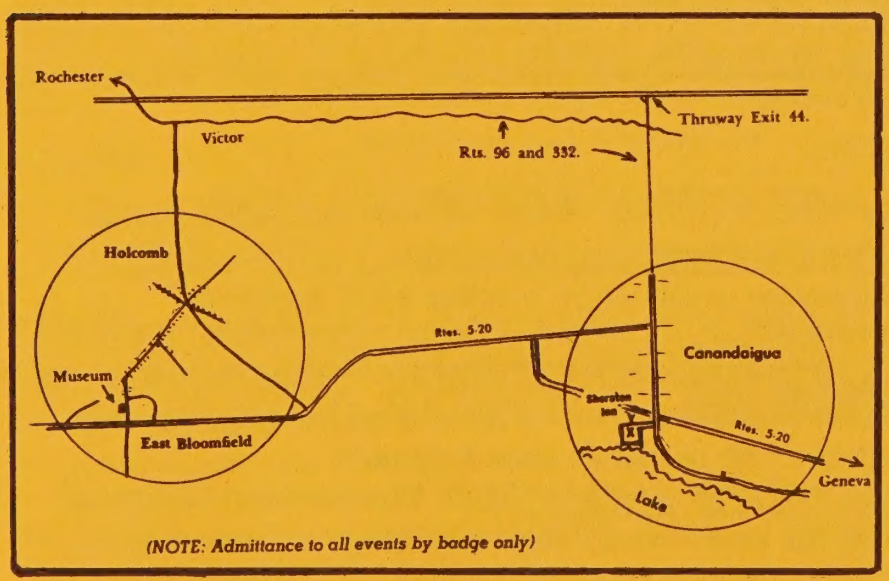
On Rt. 20 directly on beautiful Canandaigua Lake,
770 South Main Street, Canandaigua, N.Y. 14424

September		October		
29	30	1	2	3
Wed.	Thurs.	Fri.	Sat.	Sun.

This is our 21st Annual Historical Conference, which started as a one day event in the early 60's. It is an opportunity to relax and enjoy an inexpensive vacation away from the big cities in Western New York's Finger Lake region. Most motels are offering off-season rates, and unlike some national conventions with $15. registration and $25. dinners, our rates are modest. Plan to attend...for a great time !

Registration with meals must be made through Asst. Treasurer Dexter Deeley, 8 Briar Circle, Rochester, N. Y. 14618 BEFORE Sept. 15. Unlimited registration at door. (Note: Absolutely no admittance to any activity without a Registration BADGE !

"Yes, we're getting ready to go to Canandaigua....."



(NOTE: Admittance to all events by badge only)

OPEN HOUSE

A.W.A. ELECTRONIC COMMUNICATION MUSEUM
East Bloomfield, N.Y.

VISITING HOURS

Wednesday, Sept. 29
7 to 10 PM
Thursday, Sept. 30
10 AM to Noon
Sunday, October 3
9:30 to 11:30 AM
2 to 5 PM

The Museum will NOT be open Friday or Saturday.

NATIONAL HISTORICAL RADIO CONFERENCE

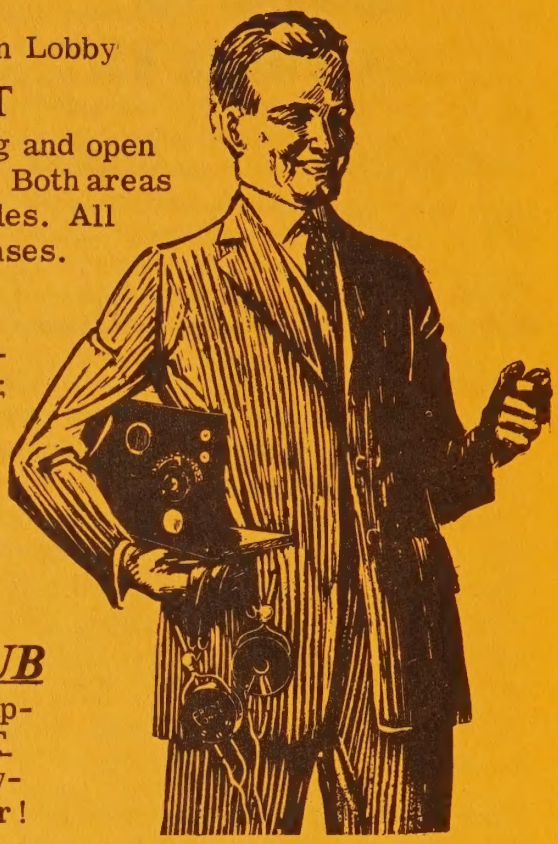
WEDNESDAY For the "Early Birds" !
3:00 - 5:00 PM Registration (Main Lobby)
7:00 - 9:00 PM Registration
7:00 - 10:00 PM AWA Museum Open

THURSDAY

9:00 AM *REGISTRATION* desk is open in Main Lobby

8:00 AM **OUTDOOR FLEA MARKET**

Motel management requests that flea marketing and open trunk sales be restricted to a designated area. Both areas will be POLICED. AWA not responsible for sales. All participants must register to help defray expenses.



9:30 AM **INDOOR FLEA MARKET**

Available without cost if you register for Conference before Sept. 1. Restricted to small artifacts; tubes, books, etc. (No receivers.) Let us know approximate amount of space you will require (half or full table). Mail info with SASE with your Conference Registration card to Dex Deeley before Sept. 1 You MUST pre-register!

10 AM to noon *A.W.A. MUSEUM OPEN*

3:00 PM ***JUNIOR WIRELESS CLUB***

Seminar and exhibit on very early wireless equipment including a special demonstration by ART GOODNOW, W1DM on spark transmitters. Everyone welcome to attend. Bring your pre-1912 gear!

8:00 PM ***VACUUM TUBE SEMINAR***

conducted by Pat Dowd, Lauren Peckham, and Bruce Roloson

First Section: Rare Tube Identification. The experts will help you identify tubes and early light bulbs without markings, etc.

Second Section: Vacuum Tube Appraisal. The Committee will select various tubes and give their approximate value. Members are encourage to bring samples.

(This promises to be an informal fun session. Everyone welcomed!)

FRIDAY

8 to 10 AM CHECK-IN for *GENERAL AUCTION* and TUBE SALE

Only items that have been PRE-REGISTERED before Sept. 1 will be accepted! Registration form and information available by sending SASE to: Lauren Peckham, Ormiston Rd., Breesport, N. Y. 14816. (AWA not responsible for sales.)

8 to 10 AM CHECK-IN for *OLD EQUIPMENT CONTEST* Ralph Williams, ARCA
(Right corridor - first floor. See Categories on last page of program.)

9:00 AM Promptly! *LADIES TRIP* leaves at Main Entrance.

9:00 AM ***A.W.A. AMATEUR MEETING*** Ken Gardner, Chairman

This is the big gathering for radio hams. Meet the "gang" who check in on the various Nets and listen to tape-play-back of the 1982 OT Contest signals, etc.

10:00 AM ***The Ultimate: RADIO ASTRONOMY***

Special 20 minute sound movie showing the giant radio telescope at Greenbank. Introduction by SETH WARD telling of pioneers Jansky and Reber.

10:30 AM - 12:30 PM Preview of items to be sold at auction. Buyers/sellers must be AWA members. Bidding cards $2. Refundable with purchase.

11:00 AM ***LIGHTNING SLINGERS*** Technical development of the "bug". Illustrated talk on various types of semi-automatic keys such as the Vibroplex and how to recognize various models. Lou Moreau, W3WRE

11:45 - 1:30 PM *SPECIAL LUNCHEON* "Make Your Own Sandwich..." (Main dining room overlooking lake.)

1:00 PM ***GENERAL AUCTION*** Bruce Roloson, Auctioneer

One of the big events of the Conference. Members with bidding cards will have seating preference (No admittance without registration badge.) Payment of auction sales at Lobby Desk between 9:30 - 10:30 PM otherwise by mail in November.

(AWA is not liable for any flea market transactions or auction sales.)

7:00 PM ***PIONEER DINNER*** Old equipment and contest awards.

8:00 PM **HISTORICAL ENTERTAINMENT** The "THIRTIES"..a historical documentary covering the 1930's with emphasis on radio. The depression, news events, music and entertainment.

9:00 PM Annual ARCA business meeting.

SATURDAY

9:00 AM ***DEVELOPMENT OF THE FEDERAL RECEIVER***

Illustrated talk by Dick Schamberger on the history and identification of Federal receivers.. a program that should be of value to collectors of fine equipment.

10:00 AM ***DE FORREST: 1906 to 1919*** Historical research by Thorn Mayes, W6AX

Inventive, enterprising and controversial describes Lee DeForest during these years. Learn the facts.....don't miss this one !

11:00 AM ***NIAGARA FALLS POWER PLANTS*** by Art Albion

Our speaker has spent most of his life in the shadow of these hydro-electrical giants and so can speak with authority. A new type of program for the historian.

12 Noon *SPECIAL LUNCHEON* Tastey Luncheon Buffet in main dining room.

12:15 Noon *LADIES LUNCHEON and PROGRAM* Small dining room

1:30 PM ***PHILCO RECEIVERS*** John Wolkonwicz

Fascinating history of Philco Radio..from beginning to end!

2:30 PM ***SHOW and TELL*** with Mel Comer and several guest speakers.

Our Moderator has promised some unusual and unique solutions for the collector.

7:00 PM ***ANNUAL BANQUET***

The grand finale! An evening of fellowship and fun. Presentation of Annual Awards by representatives from the Smithsonian and Henry Ford Museums, plus the usual "fun" awards. Guest of honor: HARVEY ROEHL "Collector Extra-ordinary".....

OLD EQUIPMENT CONTEST

LOCATION: Meeting room on main corridor at right of Motel Registration desk.
TIME: Check in equipment Friday morning between 8:00 to 10:00 AM
Remove equipment Saturday afternoon. Guard on duty at all times.

In addition to the above categories, two special awards with engraved plaques will be presented at the banquet: Elle Craftsman Award for the best homemade receiver and the best homemade transmitter (Matlack Award). Sets must be operable but not necessarily at time of judging.

CLASSIFICATIONS

1. Crystal receivers
2. Regenerative receivers (battery)
3. TRF receivers (battery)
4. Superheterodyne receivers (battery)
5. Shortwave receivers (amateur or commercial, no restrictions to power supply, circuit, etc.)
6. Speciality and Novelty receivers (No restrictions on type, circuit, etc.)
7. Detectors prior to Audion (Chemical, mineral, coherer, etc.)
8. SW converters & Receiver Input Tuners. (Devices to make BC sets SW).
9. Tube Transmitters and/or auxilliary equipment.
10. Spark Transmitters and/or auxilliary equipment.

(The last two categories do not require complete transmitter. Essential segment or unit.)

JUDGING COMMITTEE:
Ralph Williams (N3VT) and Ross Smith Third to be selected for receivers.
Ken Gardner, W2BGN, for transmitters

LADIES' PROGRAM

Another fun excursion is planned Friday (9 AM- 5 PM) See flyer for details. LADIES' SATURDAY LUNCHEON and PROGRAM will be held in the new small dining room directly across from the main dining room. There will be an entertaining program plus gift drawings. Sign up early !

MOTEL RESERVATIONS: Listed are motels in the Canandaigua area. Most offer off-season rates starting as low as $18. except the larger well-known motels. The following have a Canandaigua address with #14424 Zip code.

Sheraton Inn, 770 So. Main St. (Tele: 716-394-7800)
Lakeshore Motor Lodge, 100 Lakeshore Drive (716-394-4640)
Kellogg's Motor Inn, 130 Lakeshore Dr. (716-394-3909)
Heritage Motel, Rte. #5&20 (East) (716-394-6170)
Georgian Motel, Rte. 332 N. Main St. (716-394-2321)
Miami Motor Inn, Rte. 5&20 (East) (716-394-6700)
Mt. Vernon Motel, Rte. 5&20 (East) (716-394-9877)

Non-Canandaigua address motels:

Aloquin Motel (6 miles east on Rte. #5&20 (716-525-5563)
Valley Motel (about 7 miles west on Rte. 5&20 (716-657-6663)
Culver Motor Court (1/2 mile west of AWA Museum) Camper facilities Tele. 716-657-7781
Trenholm East (at Thruway Exit #44) (716-924-2131) Large spec, motel
Chanticleer Motor Lodge, Rte. 5&20 Geneva (315-789-7600) Large spec.

The Trenholm East and Chanticleer (and the Sheraton) are large 1st class type motels. In addition, there are many others especially near the exits of the New York Thruway (Rte. 90). The Sheraton is usually booked far in advance, although there may be last minute cancellations.

JUNIOR WIRELESS CLUB

Devoted to wireless development before 1912

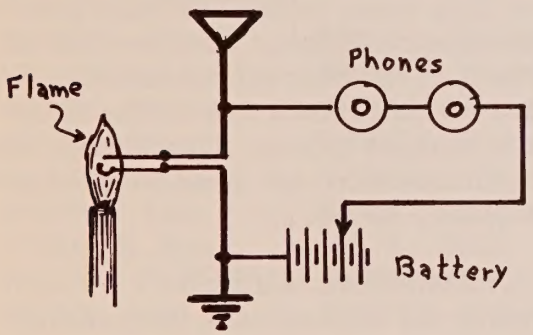
Members interested in very early wireless should explore the use of the *Flame Audion* (detector) as used by Dr. Lee deForest in his early experiments. It was the Flame Audion that inspired him to develop the 3-element triode. I have never experimented, or that matter, seen this type of operation in operation although it is described in several early wireless books.

For the benefit of members who would like to make this unique device, I quote (with sketches) a description from a 1910 manual:

This simple but sensitive form of detector is not practical for commercial work, but is very interesting as the progenitor of the audion, and provides a field for the amateur investigation. Its only drawback is that the gas flame is difficult to keep steady and every flicker registers as a sound in the telephone receivers.

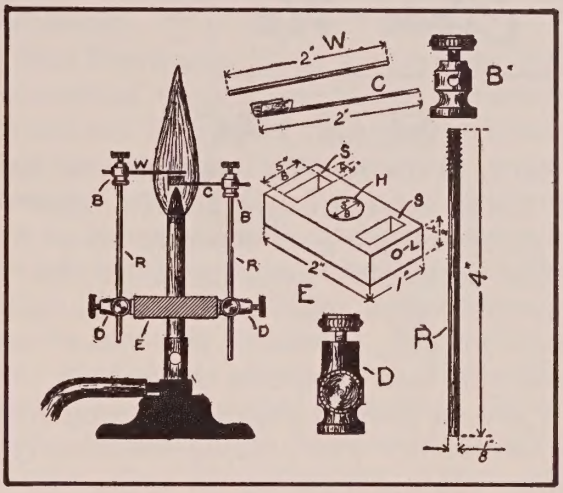
A Bunsen burner using coal gas furnishes the flame, and a salt of an alkaline metal heated in the flame, the ions. The hydroxides of Caesium, potassium and sodium give the best results in the order named.

The salt is contained in a piece of trough-shaped platinum foil, about ⅜"



long and 1/16" wide. This trough is the *cathode* or negative of the telephone circuit and placed in the oxidizing flame just above its juncture with the interior reducing flame and must be kept incandescent. The upper electrode or *anode* is a piece of platinum wire about 1/16" above the trough.

The arrangement and construction of the detector is clearly indicated in the drawing. The block, E, which fits on the tube of the Bunsen burner, is made of fiber.



Twelve dry cells are connected with a multiple point switch so that an electromotive force of 6 to 18 volts may be secured. The flame is best provided with a mica chimney to protect it from drafts. By keeping plenty of salt in the trough and carefully adjusting the voltage, this detector may be made marvelously sensitive.

There it is – a real challenge to the 1982 experimenter. With a little ingenuity, I suppose one could find a substitute for the platinum components. A nearby keyed spark, or for that matter, CW signal, would be adequate to trigger a response in the circuit.

(For a description of DeForest's experiments, see his autobiography *Father of Radio,* page 211.)

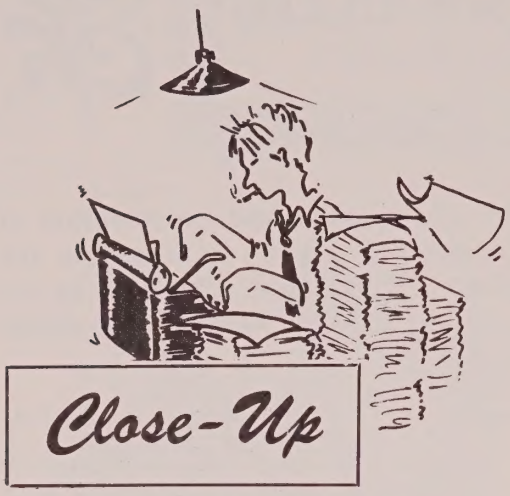
Guest Editor: Islip Twerdle

75th Anniversary

1907 - 1982

De Forest Audion

FROM HEADQUARTERS



SETS PACE

Early in the spring, members on the 40 meter ssb net heard about a "find" of early antique gear found in an old house in the NYC area: IP-501's, De Forest, Nesco, odd-looking tubes and keys. I doubt, however, this "find" can equal one that occurred in England.

It seems about 8 years ago, a farmer in Devonshire was helping his elderly father rebuild a rustic old house. As the son tossed thatching off the ancient roof, his pitchfork hit a metal object which turned out to be a tar-covered spoon.

The son suspected it might be of value and in time took it to the British Science Museum for identification. He learned the spoon was 14th century silver-- to be exact-- the maker's name indicated it was made in London in 1380. For a-while he loaned it to the local museum as a curiosity but finally decided to sell it.

In January of this year it was sold at a London auction for $24,410(!) setting an all-time high for a single spoon...

Goes to show there is still hope.... and surprises when looking for old artifacts..

WHY THE SECRET?

I thought I was alone with this complaint, but apparently not, since others experience the same problem: sales lists without identification or date. AWA has several reference files with price lists from collectors and frequently the supplier does not identify himself on each sheet. If a sheet is misplaced, it loses its identification and value.

Why not place your name and date on EACH sheet ? This also holds true for photographs. An un-identified picture is of no value. Caution must be used here. Write lightly on the back of the picture near the border. Don't use a ball-point pen and let the ink dry. Wet ink (even from a rubber stamp) adheres to the face of the next photo if stacked.

THIS BUSINESS OF HERTZ

When I expressed my feelings on the nomemclature "Hertz" as a replacement of "cycles", I was uncertain of the reaction. Well, for your information, every letter received agreed cycles never should have been replaced with Hertz. Unaminous. In fact, a couple members really vent their feelings with biting sarcasm. I feel safe now in using 60 cycles and 14.0 mc. band. By the way, it was Don Rathke who prompted me to make note in this column.

PRICES.....

Many days I receive 15 to 20 pieces of mail. Some I answer (when I have time) others I file in the wastebasket. Often my day is complicated by letters from strangers trying to sell me something or wanting to know, "how much is my super-dyne worth ?"

This brings up the subject of prices. Letters from collectors and current sales lists seem to indicate high prices for antique radio gear have leveled off. Maybe it is the current recession. In fact, several fellows are trying to unload at bargain prices. Interesting, however, prices have not gone down on pre-1920 quality items...

DIGITAL DISCS

Some of my friends have 12-inch digital records which sound great. Now I find they are not truly digital-- only the original tape used to make the master is truly digital-- the records (from the master pressing) have a conventional analog signal.

What's it all about ? To the point, true digital recording is currently the ultimate in home music reproduction. The

[Continued on next page]

Close-Up [Continued from previous page.]

sound, instead of being impressed on a record in the conventional analog manner, is recorded in digital read-out on a small (4.7) inch disc made by Phillips-Sony. It is capable of playing one hour of stereophonic music per side.

The little disc holds an incredible six billion digital "bits" which are linearly encoded along the helical track of pits and flats.

And how does the info get off the record ? By a thin laser beam scanning the grooves as the disc rotates between 200 to 500 rpm depending on scanning position. Real tricky.

We'll be hearing more about these "true" digital discs when they are released later this year. Frequency response absolutely flat from 20 to 20,000 cycles !

---B. K.

A.W.A. ON THE AIR

The 20 meter SSB Net which meets every Tuesday at 5:30 PM EDT/EDST is becoming very popular with members checking in from all over U.S., Canada and sometimes Europe. Of course, conditions play a big part since there is a time difference as much as 8 hours between some stations. Newcomers are always welcomed. Long-winded transmissions are discouraged -- brevity is the word ! Regular particpants:

OZ1BZB- Peter	KE6CG- Merle
VE1OC- Aaron	N6DAC- Norm
W2ICE- Bruce	W6ELW- Temp
K2WW- Chuck	W7AHK- Tex
W4ACG- John	W7BCT- Jim
W4DBT- Lew	W7JY- Warren
WD5HLZ- Reo	K8UZ- Bill
W6AX- Thorn	WØEOM- Will
W6CG- Bud	WØFXY- George

Frequency: 14272 to 14275 kc.

OTB LATE?

AWA cannot guarantee Third Class mail delivery. Further, if you move, 3rd class mail will not be forwarded. If you have these problems, may we suggest you have your Bulletins sent First Class.

JUNIOR WIRELESS CLUB

What is it ? Who are the members and officers ? As an organization, it is non-existent: There are no members or officers. It is purely symbolic to bring together AWA members who are interested in the very early days of wireless.

Anyone who likes to read about or tinker with pre-1912 equipment can consider himself a member. A gathering is scheduled at the Annual Conference Thursday at 3 PM. If you have a piece of very early gear, bring it for display or demonstration.

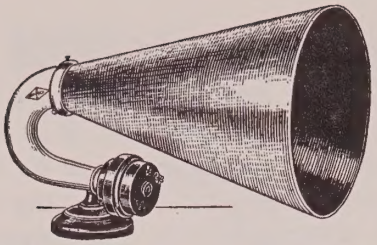
Has there ever been a club with this somewhat misleading name-- Junior Wireless ? Several may have existed, but the one that comes to mind was founded in N. Y. C. The club was formed in January, 1909, and phased out in October, 1911, when it became the Radio Club of America. Many well-known pioneers became members. How many do you recognize: Armstrong, Ballantine, Beverage, Cockaday, Dubilier, Eastham, Espenschied, Godley, Goldsmith, Grebe, Hazeltine, Heising, Hogan, Murdock, Pacent, Pickard, Rider, Sarnoff, Stone, Zenneck,.....

SE-1420 and GCR-5

I found the article on the SE-1420 receiver (OTB 22-3-14) of particular interest since I own a receiver which is somewhat similar. My set is a Type GCR-5 made by National Electrical Supply Co. (NESCO) and is almost identical in appearance to the SE-1420 except it doesn't have the buzzer and connections for a crystal detector. The nameplate gives the Serial #2 and date 5-19-26. It was used in 1930 by the Skelly Oil Company of Tulsa, Okla.

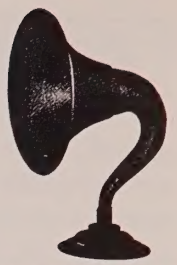
Apparently this model was made for commercial use (250-7500 meters) and the manufacturer used components made by other companies. Unlike WSA models, it uses standard Cardwell variable condensers and a Pacent rheostat. One may question these parts as replacements, But I doubt it. Why? I have a second CGR-5 and it too has Cardwell and Pacent components !

---Jim Sargent



The LOUDSPEAKER

Editor: Floyd Paul, W6THU
1545 Raymond, Glendale, California 91201
All correspondence requires SASE for reply



QUE:

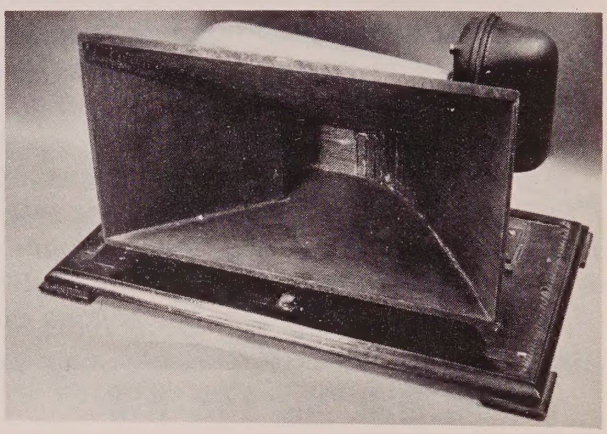
Much has been written about goose-neck style horn speakers but little about table cabinet horn speakers. Were many of this type made and if so, which were the more common ?

ANS:

Table cabinet horn speakers were made by over 36 horn speaker manufacturers. They were made by Magnavox, Amplion and Music Master. Several companies made two or more styles, for example: Utah, Timmons and Mesco. A typical cabinet speaker was enclosed on five sides and open in the front for bell opening.

Some models have grille cloth and a scroll or lattice design. The lattice work was typically wood although brass, plastic or iron wire mesh screen was sometimes used. A Bristol Super "C" cabinet is shown with the top removed so one can see the driver case and wood bell.

Cabinet horn speakers were a style variation whose style was to appeal to the woman of the house. Its intent was to "hide" the horn speaker in a nice cabinet. Probably the top of the line model for collectors today is the Amplion "Patrician" known as model AA-18. It is a cabinet carved on four sides to let the sound through in all directions.



Bristol speaker with top removed.

QUE:

Were sea shells really used in the manufacturing of horn speakers If so, which companies made them ?

ANS:

Several home-brew models of sea shell

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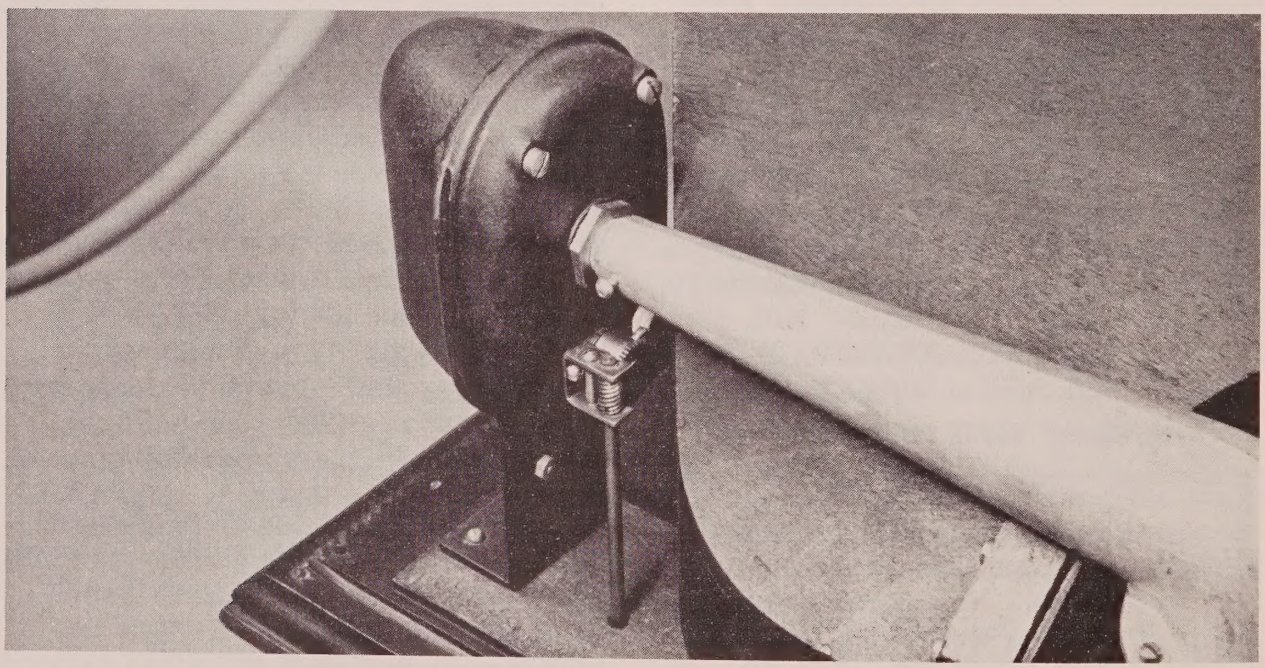


Closeup of driver unit showing gear arrangement to adjust tension on diaphragm. (Photos from Perry Ferrell)

THE HORN SPEAKER

[Continued from previous page]

horn speakers have shown up at swap meets. Only two companies were known to have made this type of speaker. One was the Oro-Tone Co. of Chicago, Ill.

They advertised in QST and Radio News magazines. A large sea shell was mounted in a mahagony base which had a type of phone clamp.

The other company was Tonks Bros. Company. They made a horn called "Sea Tone" which mounted a sea shell on top of a figurine!

Quick reference to:

RECENT ORIGINAL ARTICLES

of interest to radio historians

Mignon RC-1/BD-1, Fada170A, RADA receivers & biography Clair Farrand
ARCA Gazette, Vol. 9, #4

Reinartz SW receiver & transmitter
Radio Age, Vol. 8, #1

Charles Lowry biography
NFWA Chronicle, Vol. III, #3

Mercury Super-10, Ted Husing (bio.)
N.V.R.S. Vol. 8, #1

Dr. Brinkley/Station KFKB
MAARC, Vol. 3 #4

Wireless Operator WWI
S.O.W.P. Vol. 4, #3

Wm. Diehl (Grebe Co.), Amrad "S"tube
Radio Age, Vol. 8, #2

I.R.S. and your Collection
V.R.P.S. Vol. 9 #2

Scott Receiver, X-ray tubes, Remler Co., Selective crystal receiver
CHRS Journal, Vol. 6, Dec. '81

Quartz Crystals for amateur use
Chicago Chapter QCWA, Vol. 7 #1

Early Japanese Radio
NZVRS, Vol. 2 #4

First Transatlantic QSO (Reinartz)
Mar. '82 "Ham Radio" (p. 29)

The S-M Sargent-Rayment receiver
Radio Age, Vol. 8 #3 (Mar. '82)

Inventor Marconi
Smithsonian, March, 1982

Origin of Radio Corp. of America
VRPS, April, 1982

SS Californian and Titanic disaster
THS Commutator, Winter '81

Grebe CR-13 receiver
ARCA Gazette, Spring, 1982

NEW MEMBERS

who are (or were) with electronic communication or industry:

John Bachus (W3LNM, W8OPV)
Stats. WGR, WKGW, WFMD, WFRE

Marvis Fickett (W1LAV, W2DYP, EL8A)
Stat. WCCA, WAJZ, ELRB, Program Manager Raytheon Corp.

Bruce Gentry (KA1IVY) Serv. Tech.
U.S.A.F.

Richard Vernot (KA6NPD) Tech.
Communications U.S.N.

Lorn Howard (W9UVD) Prof. of Elect. Engineering, Gen. Dynamics

William Martin (WA2JYC) Stat. WHOL

Henry Ankeny (WØFSY) Broadcast and Police radio

David Wojcinski (WA9FDQ, W9IA)
Two-way radio tech.

Stephen Baranowski (WA1SVJ) Fed. Govern. electronic maintenance

Albert Fortin (K1FJA) Daigle and White TV Company

Joseph Looper (WA4OWF) Stat. WGH, Dir. Eng. HR Cablevision

Franic Klanka (K2IYF) Avionics, broadcast and government radio

C.F. Crandell, Bell Labs, S.W. Bell Tele. Co.

Ted Gillett (W6HX, W6GLC, W2HPL)
Hughes Aircraft (radio), etc.

R.P. Whitton (WØDSN) Owner/Chief Engineer BC stat. KMKR

Jack Behrens (W6VNT) Test flight radio oper. & electronic eng. Convair

Clive Oaks (VE3YB) Dept. of Communication, Space Program

W.C. Dodds (K6ZY, W6CPV) CMCL 2-way VHF

A.C. Saralecos (W7UYS) Pacific N.W. Bell Co.

Ernest Bernard (KB5AN, W5NSJ)
Sandia National Lab., USN Sig. Corps

Neil Handel (W2BF, W1IR, W8ALG)
Appollo Communication Program

Jack Ramsey (ex-G3BRV) B/C re-receiver & antenna R & D.

Garold Jensen (W9NVV) Naval Research Labs.

L.H. Swackhammer, Electronics Instructor

Ralph Mathis, AM/FM Stat. WCPC

AWA welcomes another youthful member, 13 year old Ronald Gay, who has restored and built 12 receivers. He is currently working on his amateur license.

OLD TYME HAM ADS

OLD TYME ADS are FREE to members interested in collecting and restoring early radio equipment for personal use.

RULES FOR ADS:

1. Only ONE ad per issue per member. Send SASE for acknowledgement.
2. Material must be over 25 years old and related to electronic communication.
3. Give full name, address and zip (and call).
4. AWA will not print repetitious ads or ones indicating regular sale or profit.
5. The Association is not responsible for ANY transaction.
6. AWA retains the right to reduce size of ad if over SIX (6) lines.
7. Only ONE ad per issue (no doubles).
8. Deadline for ads:

March issue--JAN. 10 Sept. issue--JULY 10
June issue --- APR. 10 Dec. issue-- OCT. 10

Ads received AFTER the above dates will be discarded. Mail ALL ads to: (Not Headqtrs.)

RICHARD RANSLEY
17 SHERIDAN ST., AUBURN, NY 13021

WANTED

--pwr transformer #10415 for Victor radio-phono model RE-75. Jim Ferguson, 2714 Montana Ave., Santa Monica, CA 90403

--IF xfmrs for Grammer QST super: Sickles #6505, 455kc, #6577 osc. xfmr. National Var. type SS-35. Also Remler coils for Best's superhet kit. Wes Chatellier, W5DPM, 1950 Chevelle Dr., Baton Rouge, LA 70806

--cathedrals-will pay any price for working or non-working sets especially 70 or 90. Also cabinets. Randall D. Tvedt, 122 Ridge Dr., Apt. 6, Mt. Horeb, WI 53572 or call collect (608) 437-3425

--TV Guides-New York City editions 1948-1949. Jeff Kadet, W3CRH, P.O. Box 90, Rockville, MD 20850

--assorted knobs for ac sets, wooden or plastic. Also keys and bugs. Have NC101X and military HRO for trade. Also cabinet for Radiola 20 and Crosley Super Trirdyn regular. Carl L. Elkins, AI4P, 1701 Woodland St., Nashville, TN 37206

--H.H. Scott type 99C amp in good condx. Also need 33 RPM 7 in. monaural phono records with large hole in center used in '50s Seeburg record library units. Need 6AF6 eye tube. Craig Larson, 4452 Benjamin St., Minneapolis, MN 55421

--Grebe MU-1 instruction manual original or reproduction. Also cabinet for Radiola 16. T.A. Drogoski, 507 Coal Valley Road RR, Clairton PA 15025

--FM receivers, tuners, literature etc. both bands. Also early multiplex equip. Al Germond, 211 Brenda Lane, Columbia, MO 65201 Tel. (314) 449-8035

WANTED

--REL Precedent mono FM tuner, Fisher FM-200 mono tuner, Fisher AM-80 AM tuner. Herb Brams, 2427 Durant #4, Berkeley, CA 94704 Tel. (415) 841-5396

--tube socket for Aeriola Sr., including small wooden box, top ring and screws. Also tube socket for Crosley 50. Bryan Jeffries, 2337 Woodward Ave, Burlington, Ont., Canada L7R 1V1

--General Radio instruments, literature. Have some duplicates for trade. John Field, 117 Arroyo Place, Santa Cruz, CA 95060

--base for AK Model L horn. Also heavy two conductor fabric covered battery cable. Have many octals and miniature tubes & some older types including two VT-24s. Howard Lash, 19 E. 157 St., South Holland, IL 60473

--RadioCraft April 1930; also "Radio" magazine Dec 1926 and Jan 1927. Rodney Schrock, 402 Lincoln St., Somerset, PA 15501

--cabinet for Amrad neutrodyne (2 dial small set), chrome escutcheon for Mcmurdo Silver VI. Al Jochem, 2047 College, Quincy, IL 62301

--early factory crystal sets in good condition. Send details & price. Ira Smolowitz, 15 Settlers Lane, Ballston Lake, NY 12019

--Halli. Marine Radio Compass, Gen.Comm. Co. model director, loop antenna, info. R. Hanselman, 805 S. Indiana Ave., Auburn, IN 46706

--Pre-WW2 factory-built ham xmtr, tone knob (upper left) for SX-28. Leland Smith, W5KL, Rte. 3, Jasper, AR 72641

--Emerson Mickey Mouse radio. Buy or will trade. A.R. Nolf, 620 Auburn Cr., Burlington, Ontairo, Canada L7L 5B2

--Riders Manuals XVIII, XIX thru XXIII, Tv #13, PA1, Home&Portable radio manuals 1-10, old Army & Navy Equip. Manuals. Have Sams Photofacts 100-700. Dean Soperling, 6725 Portland, Richfield, MN 55423

--UV99 tube socket cluster of 3, hook-up of Michigan MRC-2, 400 ohm pots, hook-up for Phasotrol as used in Browing Drake, Radio News Apl 1927. Have mint copy of Gernsback's Manual for sale or trade. J.N. Clapp, 1202 W.5th St., DeWitt, IA 52742

--QST's Dec. 1915 thru 1917 for cash. Ken Miller, K6IR, 16904 Geo. Washington Drive, Rockville, MD 20853 (301) 774-7709

--Federal #16 knob, Federal 57, Federal catalogs or reprints. June 1923, Jan 1924 Popular Radio, May 1924 Radio Broadcast. Send SASE for two page list of trades including Peter Pan cathedral. George Potter, 238 Village Dr., Lewisville, TX 75067 Tel. (214) 436-3944

WANTED

--tube test data for Jackson Model 637 testor.Buy original or copy. Ed Brinker, 112 E. Chandler Rd.,W. Palm Beach, Florida 33406

--circuit diagram,tube line-up & other info on McMillan "SIX".Have partially wired chassis.Will answer all correspondence and refund postage.Thanks. H.W.Burt, 19 Hunsicker Place, Roswell, NM 88201

--Heath HW18 transmitter & receiver, condition not important. J. Cadrecha, 292 S. Prospect St., Burlington,VT 05401

--ham equipment,1939 or earlier to use in O.T. contest.Must be operational. Can be commercial or home brew w/instructions. Milt Kessie,WD8OFB,16820 Hubbard Rd., Livonia, MI 48154

--McElroy Deluxe or McElroy Teardrop. Also Vibroplex Dual Lever or X-model. B.N. McEWen, 1128 Midway, Richardson, TX 75081 (214) 235-8636

--Browning Drake radio built from National offical kit with original parts. Bill Johnston, 365 Grant St., Sharon, PA 16146 (412) 347-5452

--name and address of company that can rebuild 3 Eimac type JAN450TH tubes.Also need ceramic tube sockets for same. Roy Snyder,4802 Lake Otis Parkway,Anchorage, Alaska 99507

--Aeriola SR. L.D. Haney, 7322 Clearhaven Dr.,Dallas, TX 75248

--cabinet for AK90 in good condition. Cash or trade. Herman Fothe,10 Jackson St., Sloatsburg, NY 10974

--Paragon DA2, panel and insides for Paragon 10-R, Federal #19 rheostat,owners manual for Federal A-10, AK breadboard tube socket with 20 ohm rheostat, AK 3 tube unit. Rick Weibezahl, 305 Belvidere Ave.,Washington, NJ 07882

--issues of Radio Investors Guide, Am. Radio Journal,Radio in the Home. Also book All-Electric Radio Rcvr Design by BF Miessner,1929.Alan Douglas,Box 225, Pocasset, MA 02559

--National HRO Jr. with coils in v.g. to excellent condx. UPS ships here. Please give price, etc. Ken Conrad,W2IIE, 5482 Crittenden Rd.,Akron NY 14001 Tel. (716) 542-2120

--coils for National SW3,FB7.Also pwr. supply and PSK pre-selector for FB7. Ted Gillett, 14840 Broadmoor St., Van Nuys, CA 91402

--Collins 30DX or 30DXB.State condition and price.Also need all parts for OT xmtr on page 10 of Feb. 1934 QST. Fred Mikolajewski,WD9IYA, 1325 South 103rd St., West Allis, WI 53214

--AK-40 parts,power supply cover,large tuning knob,black small fine tuning knob (brass). Lawerence Moser, 2570 S.Valley Highway Ser. Rd., Denver, CO 80222

--knob for Crosley PUP (left side),composition base for Radiola 28 loop or complete loop, spkr for Erla #271. Have radios,parts,tubes.SASE for list. Bruce Harbeck, 1316-38th,Sioux City, IA 51104

--AK cathedrals,Philco 91 and 60 chassis and any sets by Pennsylvania Wireless. Buy or trade. Gary Hill, 1507 Ridge Ave, New Castle, PA 16101 (412) 654-9335

--Grebe CR-18,Have Zenith farm cathedral model 14B131 in good condition for sale. $60. Bill Hurni,329 Evergreen Dr.,North Wales, PA 19454

--IP-500,IP-501A or SE-1420 for legitimate private collection.Perfer to buy but might trade rare tubes & spark gear. Paul C. Crum,W9LC, 6272 N.Cicero Ave., Chicago, IL 60646

--coils for National 1-10 marked A-1, A-2,B-1,B-2 etc. & power supply for same. William Alvarez,WB6EYL, 19867 E.Vista Hermosa Dr.,Walnut,CA 91789 714 595-5556

--cathedrals:Philco 16B,118B,144B,18B, 21B,AK 228,567.Also want Paragon and Grebe.Send price and condition in first letter. John Thuring, 150 Highland Cr., Rutherford, NJ 07070 (201)935-0047

--chassis for Model 54 New Buddy Crosley which is a right hand drum dial unit. Need bakelite panels for Crosley XV or X recvr.Junker chassis is O.K..Need porcelain sockets.Croker,Tavern Path, Plymouth,MA 02360

--old time straight keys wanted. Richard W. Randall, 1263 Lakehurst Rd., Livermore,CA 94550

--"Mignon" U. F. T. with gold colored case and the name on decals on sides of case. Condition not important. Peter Denman, Rte. 4, Arthur, Ontario, Canada NO GlAO (514-848-2711)

--Plug-in coils for Grebe Cr-18 special. Also audios & rheostat needed. Bob Lane, 2301 Independence Ave.,Kansas City, Mo. 64124

FOR SALE/TRADE

--AK Type L recvr chassis with tubes but no cabinet or speaker. Want two 01A tubes in good condition. J.F. Dowers, 1318 N. Ventura Ave.,Ventura,CA 93001

--early tubes-CG1162,215A,216A,217A, Myers,French TM,TMC,R5,Osram,Blue ACs, Tungars,etc. Dayfan 6 battery set. SASE for list Charles Closson, 1290 Glenwood Ave., San Jose, CA 95125

--WWII Model BN IFF transceiver $25., Westinghouse RC $150.,WWII ASB5 recvr with tubes $35.,Motorola Air Boy recvr $15. plus shipping on all. F.W.Chapman, Apt. B-218, 1130 North Lake Parker Ave. Lakeland, FL 33805

--reprints of Grebe sales brochure and instructions for operating CR-3,CR-5, CR-8,CR-9,RORN etc. $5. plus $1 postage. Trade Radiola FH horn,want cabinet for Hammarlund-Roberts bat. recvr.Don Patterson, 636 Cambridge Rd., Augusta, GA 30909

FOR SALE/TRADE

--two Weston type 425 3 1/2" surface mounted rf thermo-ammeters. 0-5A.,0-10A. $20. ea. pp. Ed Rossig, Box 33, New Market, MD 21774 (301) 865-3313

--WE-215A peanut tubes,unused in original boxes. $8. ea. plus $ 1. shipping. Want sockets for same. R.E. Pfeffer, Box 427, Morth Tonowanda, NY 14120

--AK-46 table radio,no speaker;AK-52 Lowboy console complete;AK-60 chassis w/o speaker;Automatic Electric Linemans Monophone. J.W.Dates, RD2 Caton Road, Corning, NY 14830

--Collins 310B w/20,40 & 80m coils & manual all in good condition. $110.,you ship. Want all brands of transmitting tube manuals. Scott Todd, 2911 Simpson St.,Roseville, MN 55113 (612) 633-4458

--Telefunken type EVN 171 tubes, circa 1914,unused in original cartons each with ballast $35. ea. Unused sockets for above $ 5. ea. Porcelain and brass holders for ballasts $5. ea. Ballasts only $5. ea. Charles Affelder, 2114 Ruatan St.,Adelphi,MD 20783 301 439-4941

--Automatic Radio 1950s type portable radios, Tom Thumb Model TT600.Have several brand new in factory cartons.With schematic and instructions. $25. ea ppd. Herb Parsons, 5 Surrey Ln, Peabody, MA 01960 (617) 535-1009

--Haynes-Griffin 10 tube Super $175.; Remler 8 tube Super $175.;Melodyne 11 tube Super $200.;National 1-10 w/tubes $150.;National Browning Drake 3 stage r-c coupled audio $135.SASE for list. J.Horvath,522 Third St.,San Rafael,CA 94901

--toroid coil winding machine model L5 with manual and most all accessories. Cost over $1100.Send large SASE for 3 page items list from estate & Columbia University Physics lab. J.Wasiewicz, 229 Sarles Ln,Pleasantville,NY 10570

--thousands of old parts to build 1939 or earlier gear. Send SASE for list. Joe. Keese, 47270 W. Main St., Northville,MI 48167

--HRO,loosecoupler,RME-45,many vintage construction books,variables,verniers, variometers etc. SASE for list. R Cohen, 13913 Hayward Place, Tampa,FL 33624

--trade Kennedy 220 recvr w/525 amp. Needs restoring.Want Federal 59 or 61 in good condx.Have some rare VT3 and 204A tubes for DeForest spherical audion or radios. James Cirner,13366 Pastel Lane, Mtn. View CA 94040 (415) 967-7672

--Wireless Specialty IP-501 for sale for best serious offer.Includes matching 2 step amp and service manual.Also Fed.61. John Alley,P.O.Box 568,Middleboro,MA 02346

--Echophone EC1,BC348,R23/ARC5,Dayrad 48 tube tester,Precision EV10 meter, Hickok 656 color gen.Want AK84 chassis, Majestic 50 cabinet,Radiola 16 chassis with panel for Victor 7-10.Dennis Smith, Box 113,Trenton,MI 48183

--AK-9 (variometer model) or AK-12 for Kenwood TS-530S transceiver.Always want Tuska sets & parts. Geo. Hausske,W9OLE, 1922 E. Indiana, Wheaton,IL 60187

--trade the repairs of your old meters for old meters or meter catalogs before 1920.Also trade or buy old meters. Leonard Cartwright, 21686 Noonan Court, Cupertino,Ca 95014

--over 150 radio tubes from 20s to 40s mostly new in original boxes.Some getting scarce.Must take all at $3. each. James Notaris, 1100 Welsh Rd., Ambler, PA 19002, call eve. (215) 646-3631

--Radio magazines and books & catalogs from early 1920s.SASE for list. Fred Ritter.W4FI,930 First Place, Longwood, FL 32750 (305) 339-5727

--QST 1930-50 plus CQ,Radio-Craft,etc. Also some tubes and sets.SASE for list. R. Ireland,RFD 4,Box140, Pleasant Valley, NY 12569

--Pilot 3" Tv, old battery sets, radio books and magazines, headphones, speakers, old Cw equip. crystal sets, parts & books, Sase for list. Bill Laverty, 1012 W. Geneva St., Egg Harbor, NY 08215

--DuMont 294 scope. 11 mhz bandwidth, 30 nsec. risetime w/manual. $75. A. Smith, Stonehedge, Lincoln,MA 01773

--Solid-state power supply for your battery receiver (in kit form). Will supply all A, B and C voltages, minimum ripple and regulated.Send for information. Gary Schneider, 6848 Commonwealth Blvd., Parma Hgts., Ohio 44130

YOUR AD MISSING ?
---it may have arrived too late.....
---it was sent to wrong address.....
---it was non-radio or commercial...
SEE INSTRUCTIONS AT HEAD OF THIS COLUMN..

Change In Address?

Mail information to the Treasurer who handles current mailing list.
(NOT the Secretary)
L.A. CUNDALL, W2LC
69 BOULEVARD PKWY.
ROCHESTER, N.Y., 14612

MATLACK AWARD

The Awards Committee was disappointed with lack of interest in the Conference Old Time Transmitter Award, which recognizes building or restoring early working amateur transmitters. A little investigation found the reason. Members were reluctant to enter homemade sets because they felt their equipment fell short of standards.

How wrong. Most early homemade transmitters did not have the appearance of a commercial set. They were frequently breadboard or the open chassis type. If your set has a neat appearance, don't hesitate to bring it to the next Conference – you may be a winner!

NATIONAL HISTORICAL RADIO CONFERENCE

One of the highlights of the AWA Conference is the annual auction which benefits everyone: seller, buyer and the AWA Museum. In addition, it provides a certain amount of entertainment to spectators. On this subject, I would like to repeat our policy of charging a small fee of $2. for the auction number card. Hopefully, this will bring more buyers to the front with spectators in the rear. The $2. is refunded on a purchase, and as in the past, 10% of the sale goes to the Museum Maintenance Fund. New rules this year will guarantee all items to be placed on the auction block. See program for details.

Lauren Peckham, Chairman

[Photos by W2BWK and VE3GRC]

Alan Douglas receives Houck Award for historical documentation from Elliot Sivowitch of the Smithsonian. This Award (and others) are never announced until the evening of the Conference dinner. Members are encouraged to submit their candidate to appropriate committees as listed on page 2.

BOOK & MAGAZINE REVIEWS

FATHER OF FM

Major Edwin Armstrong

Feb. '82 "73" magazine

Every now and then an article will appear covering the life of Armstrong – but seldom in an amateur publication. Wayne Green scored on this one when printed a brief article about this famous pioneer written by Armstrong's niece, Jeanne Hammond.

Much of the information is well known, but exceptionally interesting are the unpublished pictures of the inventor, his family and work. Obviously, the photos were available since the author's mother, Ethel Hammond, was Armstrong's sister.

The author is not unknown to AWA. Jeanne Hammond was instrumental in acquiring a quantity of Lessing's book, "*Man of High Fidelity*", from the Armstrong Foundation. The books were donated to AWA to sell, with proceeds going to the Museum Fund.

(Reviewed by Peter Vanquis)

Donate Less to the I.R.S.

by Larry Crumbley and Jerry Curtis.

It's a provocative title for a book. . but it makes sense after you read it. The author concentrates primarily on problems of large antique collections (of any kind) and their disposal. Settling an estate? Are you a casual collector who buys/sells? The process can be complicated, as Uncle Sam knows. . . . The ordinary lawyer or tax accountant does not always have the answers.

The 140-page book dealing with this problem is available for $6.95 plus postage from: Vestal Press

P.O. Box 97 320 N. Jensen Road
Vestal, New York 13850

(Reviewed by Robert Allen)

THE PHILCO CORPORATION

Historical Review & Strategic Analysis

1892 - 1961

by John Wolkonowicz

Collectors as well as historians will find this publication of interest. The author starts his historical documentation by telling of the founding as Helios Electric Company, a manufacturer of arc lamps. In time, of course, it became the Philadelphia Storage Battery Company and Philco.

The highlight of the book concerns Philco's operation during the 30's when it became the world's leading manufacturer of radios. John tells of manufacturing problems, its aggressive advertising and the company's eventual demise. Reference is frequently made to other manufacturers with similar problems.

It is printed in a 8½" x 11" soft binder format. Although $15 may appear expensive, it is one to be consulted and re-read. It may well be the only one on the subject.

Send $15 (ppd.) to:
John Wolkonowicz
11 Hartford Road
Worcester, Mass. 01606

Review:

BROADCAST HISTORY

A comprehensive report on the history of American broadcasting can be found in the October 12, 1981 issue of "*Broadcasting*" magazine. The publication celebrated its 50th Anniversary with a lengthy chronological (1931 - 1981) summary of all radio regulations, NAB reports, station assignments, program changes, etc.

– Mel Comer

[Continued on next page]

On Review

H. J. ROUND

by A.R. Constable

Few Americans, and for that matter, few Britons, are aware of the role H. J. Round played in radio development. He is to Great Britain what Armstrong is to the U.S.

Born in 1881, Round died in 1966 at the age of 85. In his lifetime, he took out 117 patents in various fields, primarily in vacuum tube technology. Tube collectors immediately associate his name with the famous pre-WWI "Round Valve". He later developed the well-known V-24 and others including a screen-grid tube. He designed several receivers and even a microphone. Unknown to most, Round was also working on the feedback circuit the same time as Armstrong (1913). Truly, a most remarkable pioneer.

Reviewed from B. V. W. S. Bulletin
Vol. 6, No. 3

CHANNEL ONE

Radio-Electronics, Mar. '82

Like others, I vaguely remember what happened to TV Channel 1 – something to do with frequency allocation in the late 1940's. The complete story is in the March issue of *Radio Electronics* magazine. The author, David Ferre, must have done a fair amount of research since there are all kinds of technical information.

Briefly, there were no fixed channels until 1938 when the original channels 1 through 19 were allocated anywhere from 44 to 294 mc. These channels were re-shuffled in 1940 dropping 19. 1946 found another major change eliminating 14 through 18.

On June 14, 1948, Channel 1 was dropped due to a new FCC plan. At that time, the Commission decided not to renumber the channels, hence, no Channel 1. The author also notes pictures spec changes starting with 240 lines at RCA's W2XBS in 1933 and eventually ending with the present 525. (Submitted by Chas. Willet)

MAGAZINE DOCUMENTARY

History of present-day "Audio" magazine back to its beginning: "Pacific Radio News" (1917) AUDIO, May, 1982

FERDINAND BRAUN

by Friedrich Kurylo
and Charles Susskond

Braun, another almost forgotten pioneer, died in Brooklyn in 1918 at the age of 67. A world-renowned scientist in his time, he escaped from Germany to the States just before the outbreak of WWI. In 1909 he shared the Nobel Prize with Marconi for the advancement of radio technology; he recognized and perfected inductive coupling for wireless, but is best known for the development of the cathode-ray oscilloscope. Available from: M.I.T. Press, Cambridge, Mass. Price: $29.95

BRITISH SALES LIST

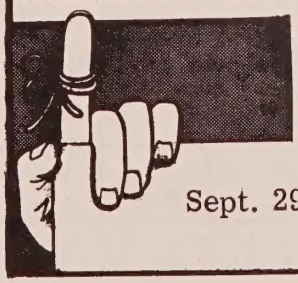
A special low rate to AWA members of only $1. (cash) will place you on the Vintage Wireless Newsheet mailing list for one year. Normal oversea cost is $6. The several pages list all kinds of British antique wireless equipment plus some non-British. I have been receiving the Newsheet for several years and find it interesting. Send $1. to:

Vintage Wireless Company
64 Broad St., Bristol,
BS16 5NL, Gt. Britain

RESTORING

an old receiver or early piece of equipment? If so, write and tell us about it. We're interested in "Short Problem Solvers" as well as detail restoration projects....

REMINDER



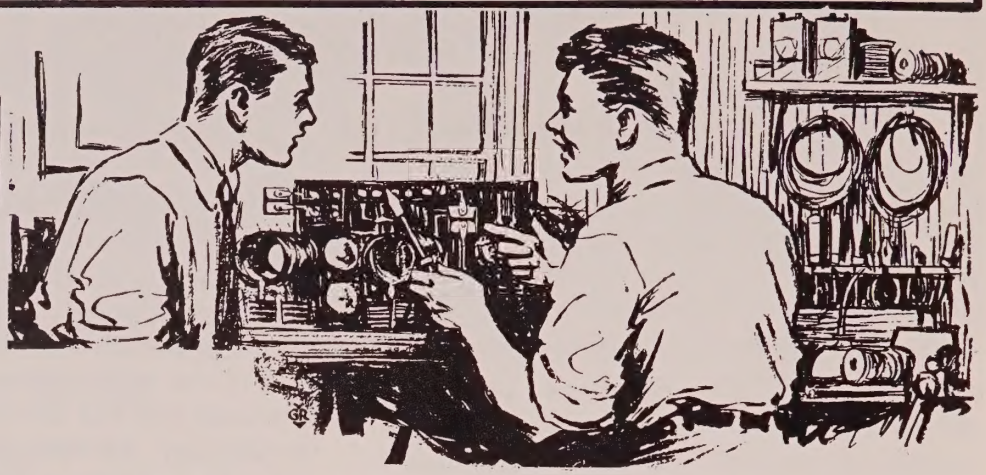
Two AWA "Meets" scheduled:

East Bloomfield, N.Y. JULY 17

Canandaigua, N.Y. Sept. 29, 30, Oct. 1, 2, 3

WITH THE COLLECTORS

PROBLEM SOLVERS



DON'T FORGET THE TUNNEL DIODE

Ed. note: In our haste to restore or document radio history of the past, we're apt to neglect more recent material. The tunnel diode is an example.

Tunnel diodes are becoming increasingly rare as CMOS transistors and chips are now preferred commercially for applications where a tunnel diode was formerly used.

The thing that makes the tunnel diode attractive to experimenters is that a circuit, no more complex than a crystal set, using a tunnel diode, can convert any crystal set into a regenerative detector, thereby boosting its gain and selectivity.

Shown is a circuit which I experimented with. The tunnel diode exhibits a negative resistance ("I" decreases as "E" increases) at between 0.2 to 0.4 volts of forward bias potential which enables it to be used as an amplifier-oscillator wheras an ordinary diode does not.

The direct current power supply to the tunnel diode must be stiff, low impedance and well regulated or else the circuit will motor-boat in and out of oscillation. This accounts for the rather odd-looking DC power supply I made up.

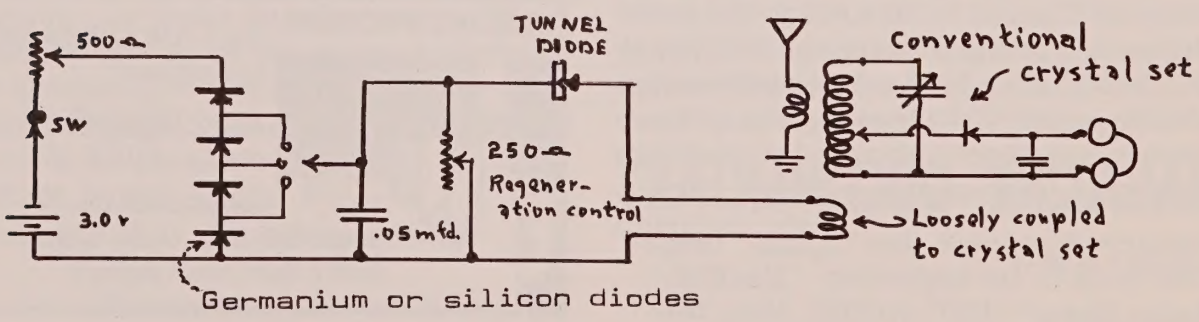
The (4) Geramium or Silicon diodes are forward biased and used as zeners. The 250 ohm variable resistor is the regeneration control (tunnel diodes negative resistance threshold voltage).

The tunnel diode should have high current capability such as G. E. 1N3719 rated at 10 ma., 1N3721 (22 ma.), or TD256A, TD266A (100ma.).

Leo Esaki of Japan is generally credited with having invented the tunnel diode around 1950; however, I remember reading in a 1923 issue of "Radio News" magazine an article on the tunnel diode by a man named Lossev. He called it a "Crystodyne oscillator" and I believe he used a zincite crystal. His circuit closely resembled that sometimes used for the tunnel diode.

---Don Rathke, Belleville, Ill.

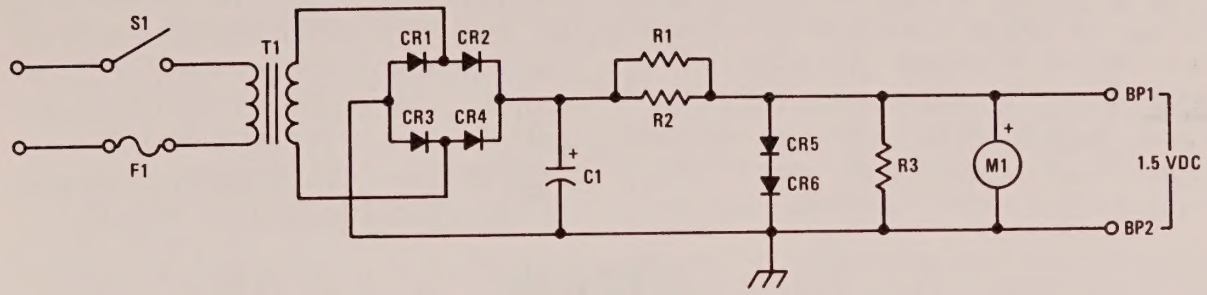
Tunnel diode as crystal set gain booster



THE AMATEUR BUILDER

"A" SUPPLY FOR 1.5 VOLT TUBES

by Mark Starin, KB2XA



1.5 volt A-Battery Eliminator circuits are popular if you collect equipment with WD11, 1R5 tubes and the like. This circuit provides 1.5 volts d.c. at 500 ma. for a minimal investment. The parts are readily available at Radio Shack, flea markets or hamfests.

The 6.3 volt a.c. output from T_1 is rectified by CR_1 through CR_4 and then filtered by C_1. R_1 and R_2 function as voltage dropping resistor while CR_5 and CR_6 serve as a shunt regulator. M_1 provides a visual indication of voltage output.

I chose to construct my 1.5 volt eliminator on vector board but conventional techniques (i.e., terminal strips) could also be used. Note that there is no problem with connecting a load of less than 500 ma. to this circuit as the shunt regulator will take up to an ampere of current.

Parts List

C_1	4600 mF. 15 volt electrolytic
CR_1-CR_6	1N4001 diodes
F_1	250v. 1/32 amp "Blow-Fuse"
M_1	0-5 d.c. voltmeter
R_1, R_2	27 ohm, 2 watt resistors
R_3	100 ohm, 1 watt resistor
S_1	SPST switch
T_1	6.3 volt filament transformer rated at 1 or more amps.
BP	Binding posts

EARLY AC RECEIVERS

I am always suspicious of old AC receivers-- almost anything can go wrong after 40 to 50 years: condensers, transformers, insulation, etc. To avoid possible grief, I always install a fuse in the 110v. AC line where it goes into the receiver. Usually a 1.0 amp "slo-blo" will do the job.

-- Al Jochem, Quincy, Ill.

VALPARAISO TECH INSTITUTE

This pioneer communication school has been mentioned several times in the past. (Formerly the Dodge Institute of Telegraphy). An up-date bulletin tells of a new wing on campus housing the Wilbur Cummings Museum of Electronics. Early radio as well as telegraph equipment is on display. Free admission. Location:

Valparaiso, Indiana

OLD EARPHONE CONNECTIONS

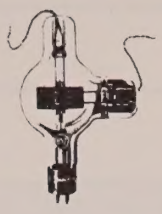
I have always been plagued with braid wire breaking at the phonetip connection or having the earphone wire frayed. To solve this problem, I use short lengths of ALPHA shrinkable tubing. It is a thin plastic tube that comes in different sizes and colors specifically for this purpose. Select the correct size, cut off to correct length and slide over wire or partial phone tip. Gently heat with lighted match and plastic tubing shrinks forming a firm protective coating. (R. Allen)

Trade name:

Alpha Mini-Fit Kit made by

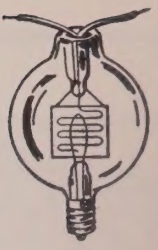
Alpha Wire Corp., Elizabeth, N.J.

--- and then there is the sad story about the fellow who tried to rejuvenate a WD-11 by doubling the filament voltage.....



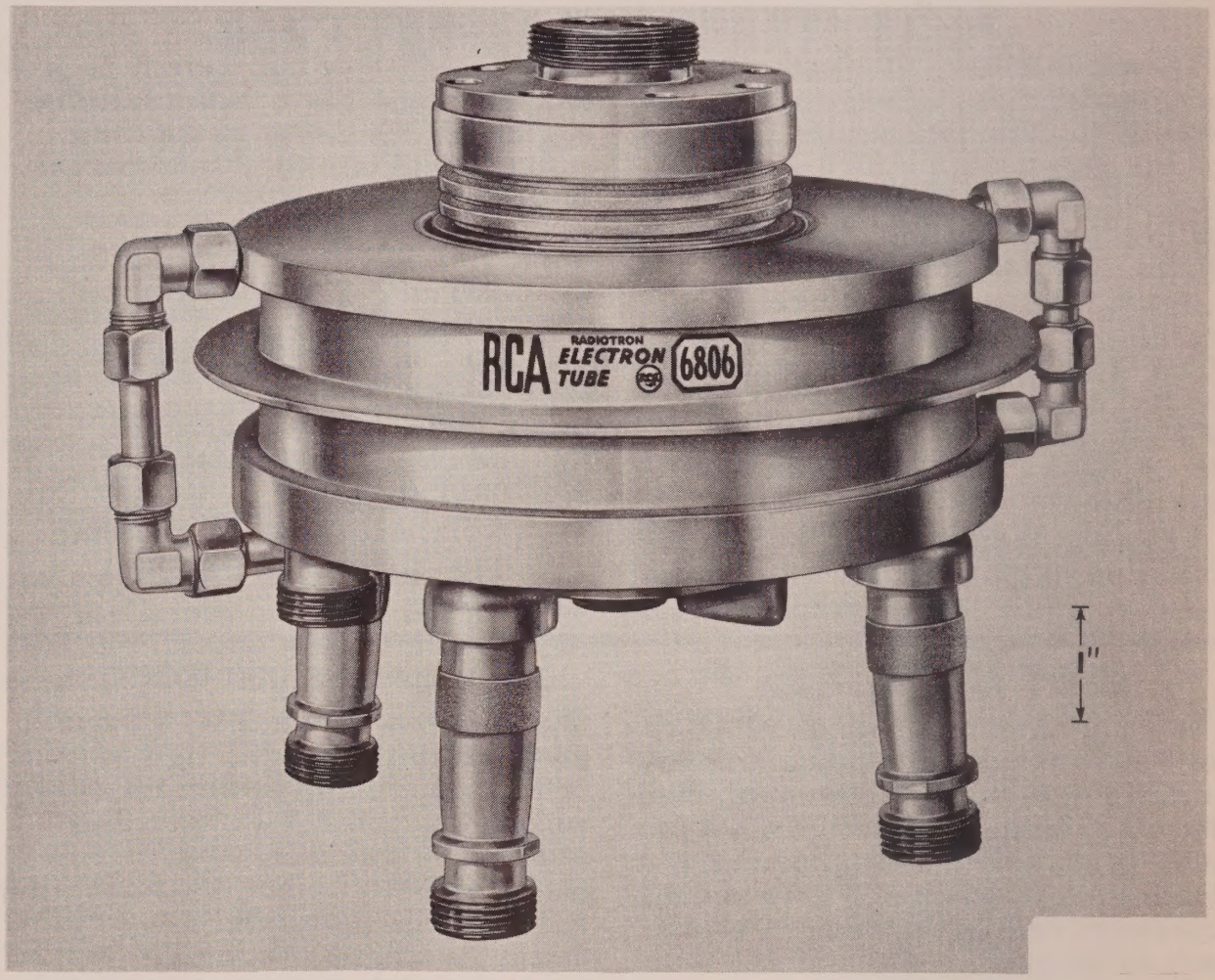
The TUBE COLLECTOR

Editor: Lauren Peckham
Ormiston Road, Breesport, NY 14816
All correspondence requires SASE for reply



QUE: I recently acquired an old Western Electric water-cooled transmitting tube. Do broadcast tubes of this type have any value and do some members collect them?

ANS: First, definitely, the tube has value, depending of course on age and type. Tube collectors do seek large transmitting tubes; however, for obvious reasons, they are not as plentiful as receiving tubes. Certain types are rare since they are not discarded but sent back to the manufacturer for salvage. Some are quite exotic. An example is the monster on this page with a filament resistance of only .00025 ohms! This tube may be seen in Bro. Pat's collection (W2GK).



Want something exotic in your tube collection? How about a RCA Type 6806 beam power tube? Developed in the late '50s, it is rated around 20,000 watts output at 800 mHz. But now for some unusual specs.

First, it requires both air and water-cooling, the latter must start well before the filament voltage is applied. In addition, the filament voltage must be increased and **decreased** gradually before and after operation. Now for the hooker — the filament is 2-sectional multi-strand thoriated tungsten rated at **1.35 VOLTS** at **1000 AMPERES** per section!!

See the large pipes portruding from the bottom? They serve as waterhose and filament connections. The spec sheet states "*the cold resistance per section*" (on filament) is **0.00025 ohm.** Think that one over.

[Continued on next page]

NATIONAL HISTORICAL RADIO CONFERENCE

LADIES' PROGRAM

Special exhibits and craft demonstrations in the adjoining Historical Museum have been planned by the Ladies of the Historical Society of East Bloomfield. These events are scheduled to coincide with the Open House hours at the AWA Radio Museum.

FRIDAY, October 1 – SPECIAL LADIES' TRIP this year will leave the Sheraton at 9:00 a.m. Our buses will take us west to the famed Genesee Country Village where we can go back in time a century or two as we stroll through shops, homes, a school and a church – all original structures transported to the site. Lunch will be at Caledonia Village Inn, personally recommended by our guides from Sparetime Travel.

Then, it's on to Letchworth State Park, a scenic spot on the deep Genesee River Gorge and filled with historic lore our guides will relate. Cost for the trip, including lunch and all admissions, is $33.00. We will return to the Sheraton by 5 p.m.

SATURDAY, October 2, 12 Noon – Ladies' Luncheon and program in a newly decorated room at the Sheraton. An informal get-together with drawing for gifts and a program are planned.

(**Note:** For any of you wishing to spend more time in the Finger Lakes country, Sparetime Travel, Inc., Canandaigua, NY 14424 offers guided tours. Write them to make advance plans.)

THE AUCTION

NEW AUCTION PROCEEDURE FOR 1982 AWA CONFERENCE

1. NO REGISTRATION OF ITEMS ON DAY OF AUCTION.
2. PERSONS WISHING TO SELL MUST PRE REGISTER BY MAIL NO LATER THAN AUGUST 31. (See form below)
3. BE SURE TO INCLUDE A LARGE S.A.S.E.---YOU WILL RECEIVE THE REGULAR AUCTION REGISTRATION FORMS ON OR BEFORE SEPT. 15, 1982.
4. PLEASE NOTE THE 3 CATEGORIES: RECEIVER/ACCESSORIES/TUBES, HOWEVER DO NOT CHOOSE MORE THAN 2 CATEGORIES---THIS SHOULD ALLOW ALL EQUIPMENT TO BE SOLD.

RULES

NO CONSOLE RECEIVERS OR TEST EQUIPMENT

NO LARGE GROUPS OF SERVICE MANUALS OR MAGAZINES

BIDDING NUMBER CARDS WILL BE AVAILABLE AFTER 8:00AM on 10/1/82

-detach here-

Check any 2 Categories

1. RECEIVER (Battery sets preferred) ____ MAXIMUM OF 1
2. ACCESSORIES (Speakers, etc.) ____ ____ MAXIMUM OF 2 ITEMS OR 2 GROUPS
3. TUBES (Please check Filament) ____ ____ MAXIMUM OF 2 TUBES OR 2 GROUPS

Mail to: L.A. Peckham, Ormiston Road, Breesport, N.Y. 14816

REGISTRATION

1982

Fill in number attending and the amount in appropriate box				NO. ATTEND	TOTAL DOLLARS
REGISTRATION - Required for all activities Children free (Note: $5.00 at the gate)		Advance	$4.00		
		Ladies	$1.00		
Friday Oct. 1	LADIES' TRIP Take Bus at Main Door	9:00 AM	$33.00		
	DINNER - Chicken Cordon Bleu Canandaigua Room	6:30 PM	$9.50		
Saturday Oct. 2	LADIES' LUNCH Tiffany Room	Noon	$6.00		
	ANNUAL BANQUET - Prime Rib Canandaigua Room	7:00 PM	$14.00		
Gratuity and tax included in all meals.			Total Amount →		

REGISTRATION FORM

ANTIQUE WIRELESS ASSOCIATION

ANNUAL HISTORICAL RADIO CONFERENCE

Name: _____ Call: _____

Street: _____

City: _____ State: _____ Zip: _____

Make check to ANTIQUE WIRELESS ASSN. and mail before September 10 to Asst. Treasurer:

DEXTER DEELEY, 8 BRIAR CIRCLE
ROCHESTER, NEW YORK 14618

IMPORTANT: September 10 is absolute deadline for all meals. Registration is unlimited and covers all activities. Pick up tickets at Sheraton Inn Headquarters. If you wish acknowledgement of reservations, enclose S.A.S.E.

[Continued from previous page]

QUE: I was very interested in Bro. Pat's article on All-Metal tubes [Mar., 1976 OTB], Do you have any idea how many of these tubes were made over the years?

ANS: All-metal tubes were first manufactured in 1935. By 1959, conventional metal tubes were being phased out to be replaced by the newly developed Nuvistor (also metal). Remaining production of conventional metal tubes was mostly for replacement. Here is RCA's production record up to that time:

1934	None	1947	20,300,827
1935	800,000	1948	18,680,077
1936	10,800,000	1949	8,142,553
1937	14,000,000	1950	14,958,117
1938	15,000,000	1951	17,441,810
1939	15,000,000	1952	16,750,970
1940	17,000,000	1953	9,997,334
1941	20,965,164	1954	6,383,567
1942	21,908,322	1955	7,469,535
1943	23,049,013	1956	8,783,101
1944	21,235,390	1957	6,254,869
1945	19,345,152	1958	6,129,196
1946	14,572,326,	1959	993,013 (3 months)

Total through 1959 - 343,160,336

Send me your questions about old tubes. (I do not appraise.)
-- Lauren Peckham

ELLE CRAFTSMAN AWARD

The family of Bruce Elle, W2-VTR, and an AWA Charter member who became a Silent Key in 1979, is funding an annual award in his memory. Elle was a master craftsman in both his vocation and hobby, so it is most fitting that he is remembered by such an award.

The award is given each year at the Annual Conference in the form of an engraved plaque presented by the contest committee under the chairmanship of Ralph Williams. Rules for the compeition:

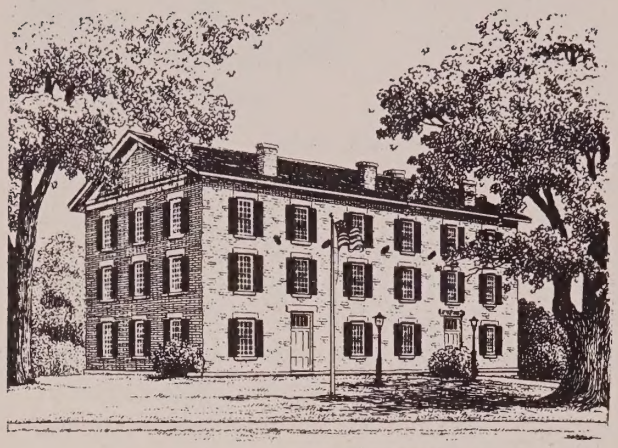
1. Entries are to be receivers of any design before 1940.
2. Entries are limited to one per member per year.
3. A member winning this award will not be eligible to win future awards.
4. The entire receiver must be built by the entrant (replica parts allowed.).
5. The receiver must have been built within three years prior to the Conference.
6. The receiver must be displayed at the Conference.
7. There must be at least 3 entries.

A.W.A. AWARD LISTING

Year	OT Xmtr Contest	Houck Awards: Documentation	Houck Awards: Preservation	President's Award
1971	W2LV	Thorn Mayes	- - -	- - -
1972	W2LV	Bruce Kelley	Ed Raser	- - -
1973	W2LV	Gerald Tyne	Robert Merriam	- - -
1974	W2LV/WØTRF	Lou Moreau	Warren Green	- - -
1975	W1DM	Wm. Breniman	Stuart Davis	- - -
1976	W1DM	Howard Schrader	Wayne Nelson	- - -
1977	W1DM	Ralph Williams	Vance Phillips	Ralph Williams
1978	K4TS	Don de Neuf	Lauren Peckham	Dex Deeley
1979	W1DM	Ivan Coggleshall	Joe Pavek	Don Ray
1980	W2LV	Lloyd Espenschied	Ralph Muchow	Linc Cundall
1981	K4TS	Alan Douglas	John Caperton	Geo. Batterson

	Tyne Tube Award	Elle Craftsman Award	Matlack Transmitter Award
1980	Bro. Patrick Dowd	Alan Douglas	William Shaw, W2HYN
1981	John Stokes	Bob Mac Intyre	- - - - - - -

THE MUSEUM



NEW EQUIPMENT in A.W.A. Museum

(sets, parts, magazines, books, etc.)

W2HYN, W2QO, R. P. I., W6SAI, A. Sanders, Jim Sanders, H. Voorhis

In addition to the historical key exhibit, there will be a new tube display based on Tyne's "Saga of the Vacuum Tube". A detailed description will appear in a later OTB.

A new piece of equipment promised to the Museum is a working static machine. It should be of interest to most visitors, particularly the younger people.

REPORT ON A.W.A. STORAGE BUILDING

As this is being written (in April), we find the Museum Committee busily making plans for both the Museum opening and the storage building occupancy. Bill Shaw (W2HYN) acquired at minimum cost several relatively new all-metal office desks and chairs, plus cabinets and storage carts.

Bill Ehlers (WA2JMH), has outlined plans for wiring the storage building. AWA is fortunate in having JMH as a local member, since he is in the electrical contracting business. Several work sessions are planned to assemble shelving and erect partitions. By the time you read this, most of the work will have been completed.

A.W.A. HISTORICAL MUSEUM

East Bloomfield, N.Y.
Bruce Kelley, Curator

Museum Hours:
Sunday ——— 2 to 5 P.M.
Wednesday ——— 7 to 9 P.M.
May through October

Open to groups by appointment
Tele. (716) 657-7489

Free Admission

Museum Telephone:
(716) 657-6260

ED. G. RASER, W2ZI EXHIBIT

The historical keys, currently featured in Lou Moreau's Key Column, are from Ed Raser's (W2ZI) collection. Ed started collecting keys well before WW2 and concentrated on keys of historical significance. As an example, the March OTB pictured the key used to send the SOS from the "Morro Castle". Other interesting keys will be discussed in the future.

Members who saw the AWA show "120 Years of Brasspounding" had an opportunity to see the keys and hear Ed tell about them. Now there is an excellent possibility this unique collection, considered by some to be the most outstanding of its kind, will be on display at the AWA Museum this summer and fall. It will allow members attending the Conference to see the keys firsthand.

MUSEUM ACTIVITY

Guy Biraud (Fontenay, France) has on display the transmitter used by amateur station F8CT (ef-8CT) for the first 10 meter transatlantic QSO. The counterpart in America was U-2JN pictured on the cover of the Sept. '81 OTB.